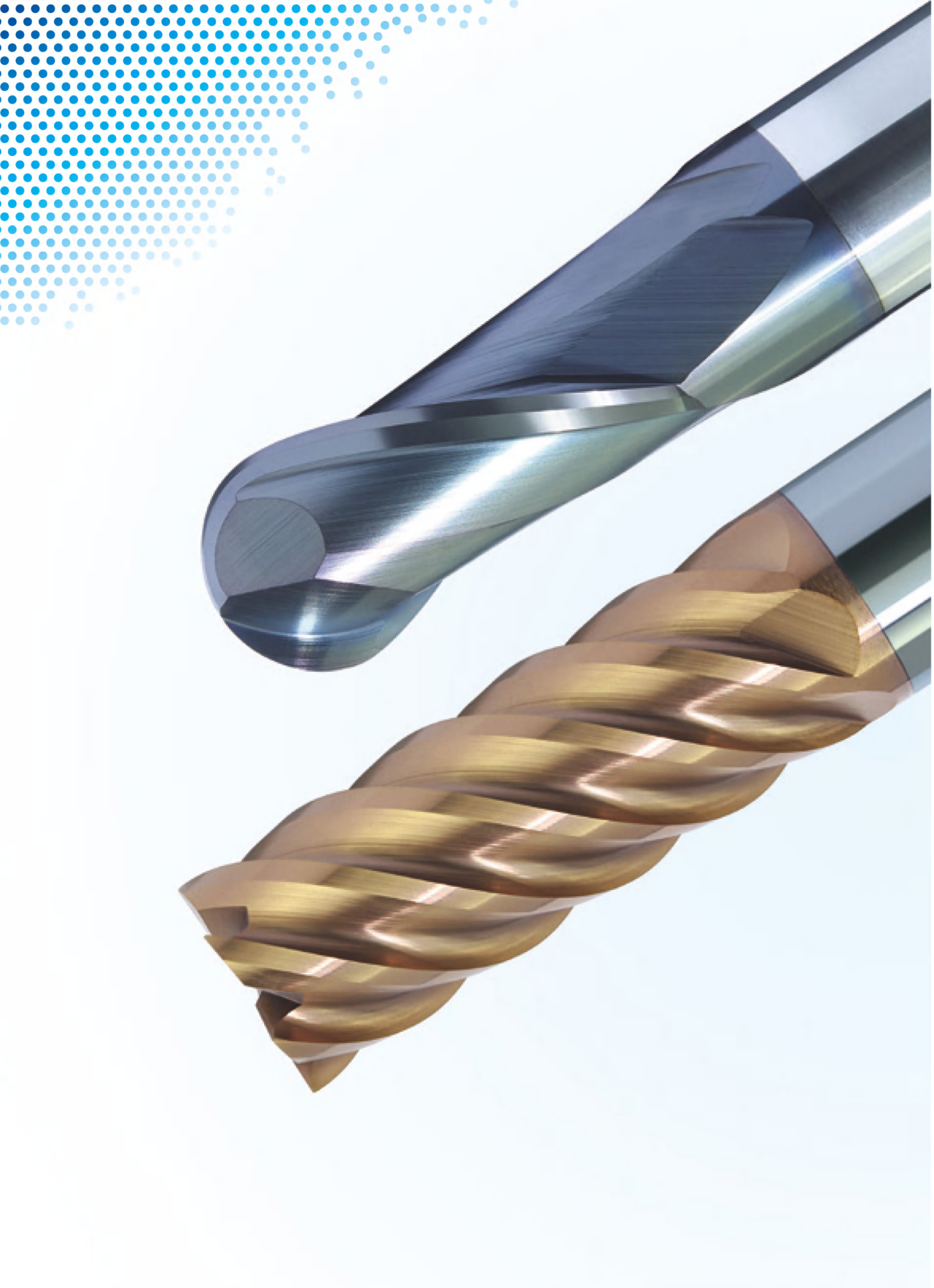
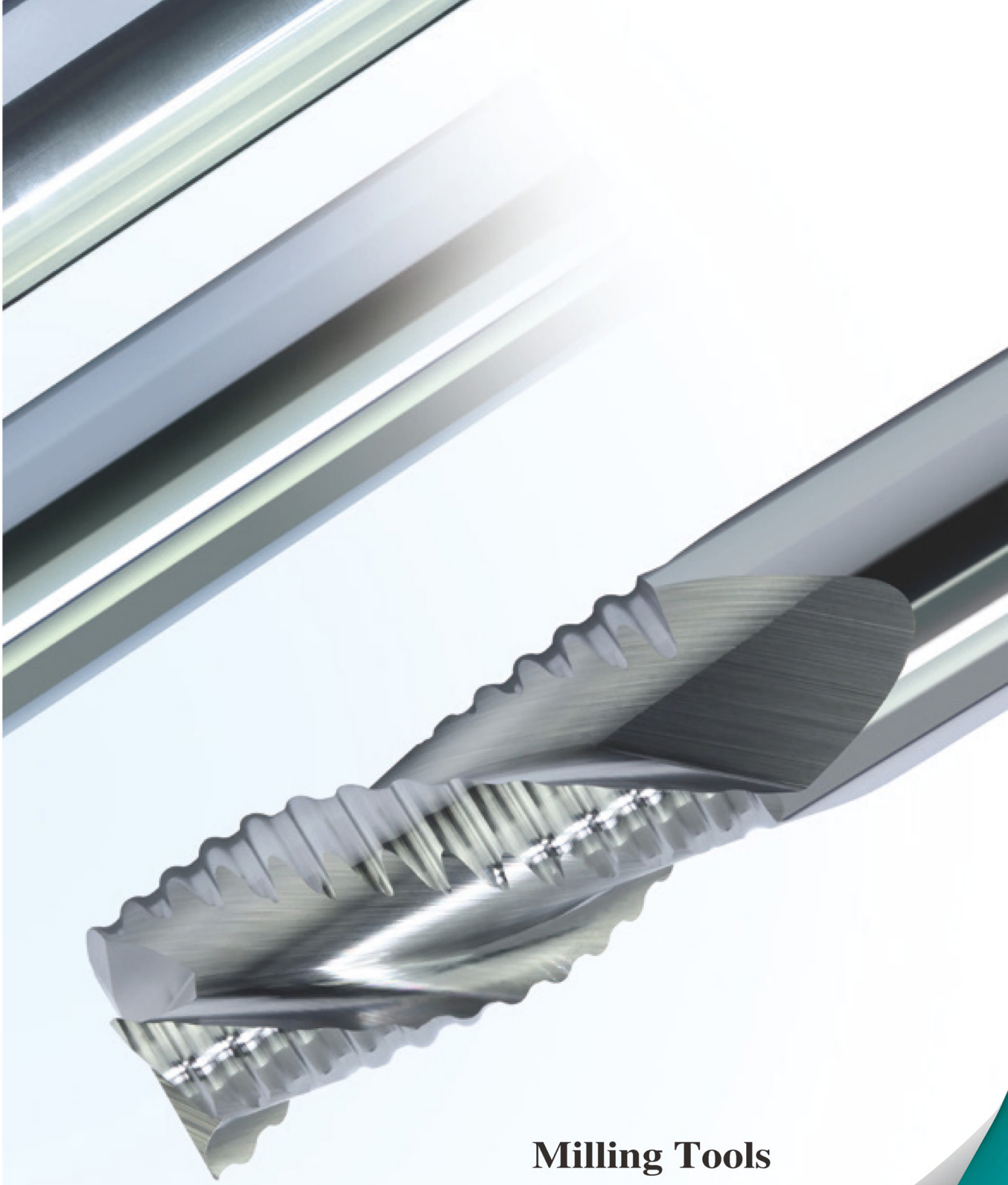




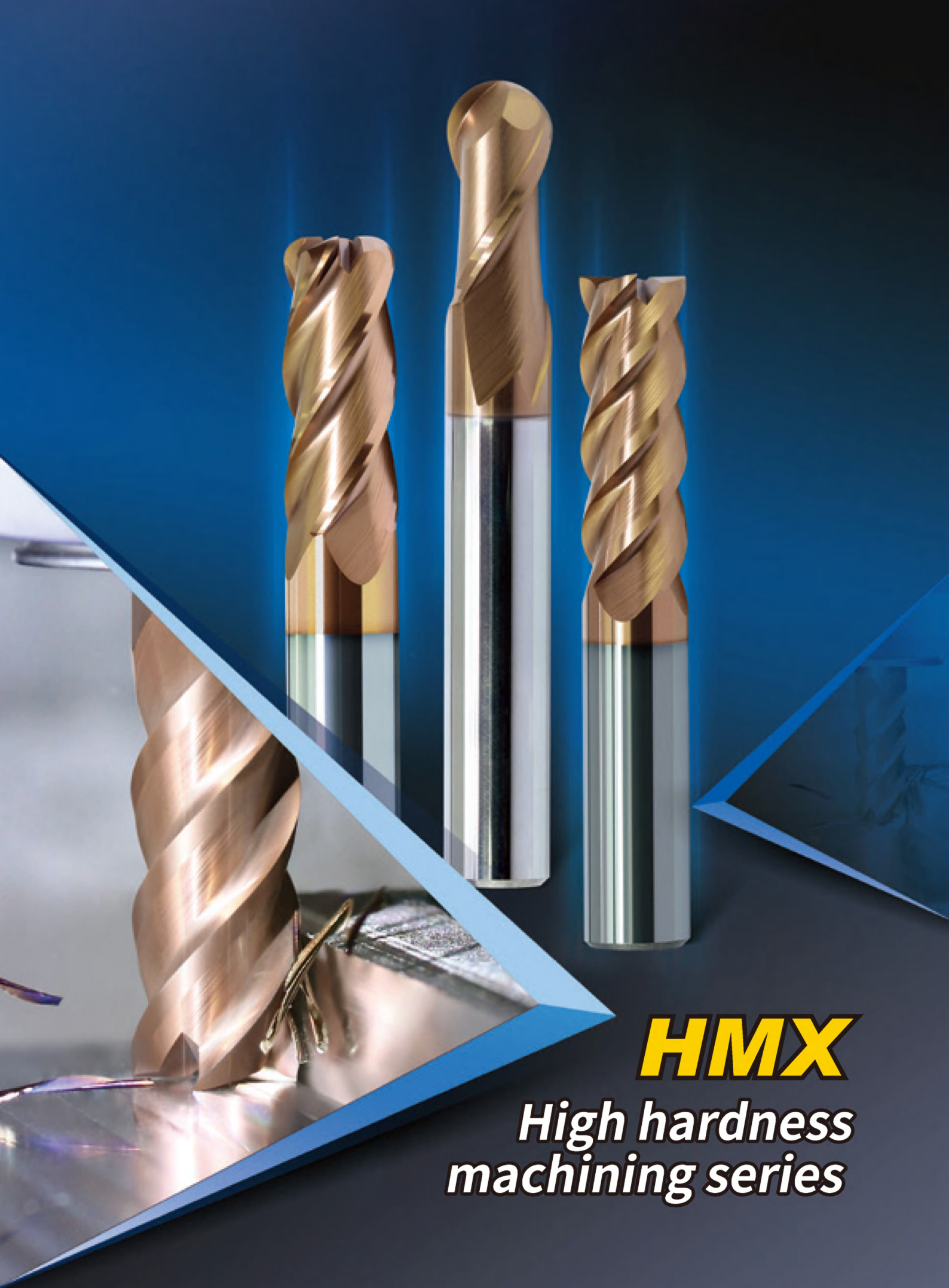
Milling Tools

Solid carbide end mills


UM series
High performance machining
with unequal pitch

PML series


PM series


HMX
High hardness
machining series

Selection guide for solid carbide end mills

Selection guide for solid carbide end mills

Tool shape

Tool type

Series of tools

Solid Carbide End Mills
PML series

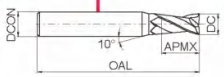
Machining application

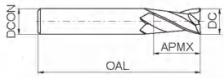
shape and size

2-flute flattened end mills with straight shank

PML-2E

● Very suitable for slot milling. ● Wide application.





Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PML-2E-D1.0S	1.0	4	3	50	2	Picture 1	●
PML-2E-D1.0	1.0	6	3	50	2	Picture 1	●
PML-2E-D1.5S	1.5	4	4	50	2	Picture 1	●
PML-2E-D1.5	1.5	6	4	50	2	Picture 1	●
PML-2E-D2.0S	2.0	4	6	50	2	Picture 1	●
PML-2E-D2.0	2.0	6	6	50	2	Picture 1	●
PML-2E-D2.5S	2.5	4	8	50	2	Picture 1	●
PML-2E-D2.5	2.5	6	8	50	2	Picture 1	●
PML-2E-D3.0S	3.0	4	8	50	2	Picture 1	●
PML-2E-D3.0	3.0	6	8	50	2	Picture 1	●
PML-2E-D3.5	3.5	6	10	50	2	Picture 1	●
PML-2E-D4.0S	4.0	4	11	50	2	Picture 2	●
PML-2E-D4.0	4.0	6	11	50	2	Picture 1	●
PML-2E-D4.5	4.5	6	11	50	2	Picture 1	●
PML-2E-D5.0	5.0	6	13	50	2	Picture 1	●
PML-2E-D5.5	5.5	6	16	50	2	Picture 1	●
PML-2E-D6.0	6.0	6	16	50	2	Picture 2	●
PML-2E-D7.0	7.0	8	20	60	2	Picture 1	●
PML-2E-D8.0	8.0	8	20	60	2	Picture 2	●
PML-2E-D9.0	9.0	10	22	75	2	Picture 1	●
PML-2E-D10.0	10.0	10	25	75	2	Picture 2	●
PML-2E-D11.0	11.0	12	26	75	2	Picture 1	●
PML-2E-D12.0	12.0	12	30	75	2	Picture 2	●
PML-2E-D14.0	14.0	14	32	75	2	Picture 2	●
PML-2E-D16.0	16.0	16	45	100	2	Picture 2	●
PML-2E-D18.0	18.0	18	45	100	2	Picture 2	●
PML-2E-D20.0	20.0	20	45	100	2	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294 | Graphics category and identification B295 | Cutting parameters B552 | Non-standard customization B652-B653

Applicable workpiece material range

Helical angle, coating and cutting diameter tolerance, etc.

Product features

Specification
Type, basic dimension, number of teeth and structure

Code key, cutting parameters, graphics category and identification, Non-standard customization

MILLING

Solid Carbide End Mills

Solid carbide end mills overview

Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material									Page	
						P		M	K	N		S	H			
						Carbon steel, alloy steel	Pre-hardened steel	Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Heat resistant alloy, Titanium alloy	High hardness steel Below 55HRC	High hardness steel Above 55HRC	Specification	Cutting parameters
High-performance general milling	Flattened	4	**VPM-4E** (Unequal pitch)		Ø3.0~Ø20.0	◎	◎		◎				◎		B298	B540
			VPM-4EBL/X (Unequal pitch)		Ø3.0~Ø20.0	◎	◎		◎				◎		B299	B540
			VPM-4EFP (Unequal pitch)		Ø3.0~Ø20.0	◎	◎		◎				◎		B300	B540
	Radius	4	**VPM-4R** (Unequal pitch)		Ø3.0~Ø12.0	◎	◎		◎				◎		B301 -302	B541
			VPM-4RBL/X (Unequal pitch)		Ø3.0~Ø12.0	◎	◎		◎				◎		B303 -304	B541
			VPM-4RFP (Unequal pitch)		Ø3.0~Ø12.0	◎	◎		◎				◎		B305	B541
	Flattened	4	**UM-4E** (Unequal pitch)		Ø4.0~Ø20.0	◎	◎	○	◎			○	◎		B307	B542 -543
			UM-4EL (Unequal pitch)		Ø4.0~Ø20.0	◎	◎	○	◎			○	◎		B308	B542 -543
			UM-4EFP (Unequal pitch)		Ø6.0~Ø20.0	◎	◎	○	◎			○	◎		B309	B544 -545
	Radius	4	**UM-4R** (Unequal pitch)		Ø4.0~Ø20.0	◎	◎	○	◎			○	◎		B310	B546 -547
			UM-4RL (Unequal pitch)		Ø6.0~Ø16.0	◎	◎	○	◎			○	◎		B311	B546 -547
			UM-4RFP (Unequal pitch)		Ø6.0~Ø16.0	◎	◎	○	◎			○	◎		B312	B548
	Flattened	4	**PMX-4E** (Unequal pitch)		Ø1.0~Ø20.0	◎	◎		◎				◎		B315 -316	B549
			PMX-4EBL/X (Unequal pitch)		Ø3.0~Ø20.0	◎	◎		◎				◎		B317	B549
			PMX-4EFP (Unequal pitch)		Ø3.0~Ø20.0	◎	◎		◎				◎		B318	B549
	Radius		**PMX-4R** (Unequal pitch)		Ø1.0~Ø16.0	◎	◎		◎				◎		B319 -320	B550
			PMX-4RBL/X (Unequal pitch)		Ø3.0~Ø16.0	◎	◎		◎				◎		B321 -322	B550
			PMX-4RFP (Unequal pitch)		Ø3.0~Ø16.0	◎	◎		◎				◎		B323	B550
	Ball nose	2	**PMX-2B**		R1.0~R10.0	◎	◎		◎				◎		B324	B551
			PMX-2BL/ M/X		R1.0~R10.0	◎	◎		◎				◎		B325	B551
			PMX-2BFP		R0.5~R10.0	◎	◎		◎				◎		B326	B551
	Flattened	2	**PML-2E** (Corner protection)		Ø1.0~ Ø20.0	◎	◎	○	◎			○			B328	B552
			PML-2F (Sharp)		Ø1.0~ Ø20.0	◎	◎	○	◎			○			B329	B553
			PML-2EL (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎			○			B330	B552
			PML-2FL (Sharp)		Ø3.0~ Ø20.0	◎	◎	○	◎			○			B331	B553

◎Very suitable ○Suitable

Solid carbide end mills overview

Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material									Page	
						P		M	K	N		S	H			
						Carbon steel, alloy steel	Pre-hardened steel	Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Heat resistant alloy, Titanium alloy	High hardness steel Below 55HRC	High hardness steel Above 55HRC	Specification	Cutting parameters
High-performance general milling	Flattened	2	PML-2EFP (Corner protection)		Ø6.0~ Ø20.0	◎	◎	○	◎			○			B332	B554
		3	PML-3E-H (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎			○			B333	B555
			PML-3EL-H (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎			○			B334	B555
		4	PML-4E-G (Corner protection)		Ø1.0~ Ø20.0	◎	◎	○	◎			○			B335	B556 -557
			PML-4F-G (Sharp)		Ø1.0~ Ø20.0	◎	◎	○	◎			○			B336	B558 -559
			PML-4EL-G (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎			○			B337	B556 -557
			PML-4FL-G (Sharp)		Ø3.0~ Ø20.0	◎	◎	○	◎			○			B338	B558 -559
			PML-4EX-G (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎			○			B339	B560
			PML-4E (Corner protection)		Ø1.0~ Ø20.0	◎	◎	○	◎			○			B340	B561 -562
			PML-4EL (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎			○			B341	B561 -562
			PML-4E-H (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎			○			B342	B556 -557
			PML-4EL-H (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎			○			B343	B556 -557
			PML-4EFP (Corner protection)		Ø6.0~ Ø20.0	◎	◎	○	◎			○			B344	B563 -564
		6	PML-6E (Corner protection)		Ø6.0~ Ø20.0	◎	◎	○	◎			○			B345	B565
			PML-6EL (Corner protection)		Ø6.0~ Ø20.0	◎	◎	○	◎			○			B346	B566
	Ball nose	2	PML-2B		R0.5~R10.0	◎	◎	○	◎			○			B347	B567 -568
			PML-2BL		R1.0~R10.0	◎	◎	○	◎			○			B348	B567 -568
			PML-2BFP		R0.5~R10.0	◎	◎	○	◎			○			B349	B567 -568
		4	PML-4B		R1.5~R10.0	◎	◎	○	◎			○			B350	B569
			PML-4BL		R1.5~R10.0	◎	◎	○	◎			○			B351	B569
	Radius	2	PML-2R		Ø1.0~ Ø12.0	◎	◎	○	◎			○			B352	B573
		4	PML-4R		Ø3.0~ Ø12.0	◎	◎	○	◎			○			B353	B574
			PML-4R-H		Ø3.0~ Ø12.0	◎	◎	○	◎			○			B354	B574
			PML-4RFP		Ø6.0~ Ø16.0	◎	◎	○	◎			○			B355	B574
	Flattened	2	PM-2E (Corner protection)		Ø1.0~ Ø20.0	◎	◎	○	◎			○	◎		B358	B552

◎Very suitable ○Suitable

Solid carbide end mills overview

Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material									Page	
						P		M	K	N		S	H			
						Carbon steel, alloy steel	Pre-hardened steel	Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Heat resistant alloy, Titanium alloy	High hardness steel Below 55HRC	High hardness steel Above 55HRC	Specification	Cutting parameters
High-performance general milling	Flattened	2	PM-2F (Sharp)		Ø1.0~ Ø20.0	◎	◎	○	◎			○	◎		B359	B553
			PM-2EL (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎			○	◎		B360	B552
			PM-2FL (Sharp)		Ø3.0~ Ø20.0	◎	◎	○	◎			○	◎		B361	B553
			PM-2EFP (Corner protection)		Ø6.0~ Ø20.0	◎	◎	○	◎			○	◎		B362	B554
			PM-2EBL/X (Corner protection)		Ø3.0~ Ø12.0	◎	◎	○	◎			○	◎		B363	B552
		3	PM-3E-H (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎			○	◎		B364	B555
			PM-3EL-H (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎			○	◎		B365	B555
		4	PM-4E-G (Corner protection)		Ø1.0~ Ø20.0	◎	◎	○	◎			○	◎		B366 -367	B556 -557
			PM-4F-G (Sharp)		Ø1.0~ Ø20.0	◎	◎	○	◎			○	◎		B368	B558 -559
			PM-4EL-G (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎			○	◎		B369	B556 -557
			PM-4FL-G (Sharp)		Ø3.0~ Ø20.0	◎	◎	○	◎			○	◎		B370	B558 -559
			PM-4EX-G (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎			○	◎		B371	B560
			PM-4EBL/X-G (Corner protection)		Ø3.0~ Ø12.0	◎	◎	○	◎			○	◎		B372	B556 -557
			PM-4E (Corner protection)		Ø1.0~ Ø20.0	◎	◎	○	◎			○	◎		B373 -374	B561 -562
			PM-4EL (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎			○	◎		B375	B561 -562
			PM-4E-H (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎			○	◎		B376	B556 -557
			PM-4EL-H (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎			○	◎		B377	B556 -557
			PM-4EFP (Corner protection)		Ø6.0~ Ø20.0	◎	◎	○	◎			○	◎		B378	B563 -564
			PM-4EBL/X (Corner protection)		Ø3.0~ Ø12.0	◎	◎	○	◎			○	◎		B379	B561 -562
		6	PM-6E (Corner protection)		Ø6.0~ Ø20.0	◎	◎	○	◎			○	◎		B380	B565
			PM-6EL (Corner protection)		Ø6.0~ Ø20.0	◎	◎	○	◎			○	◎		B381	B566
	Ball nose	2	PM-2B		R0.5~R10.0	◎	◎	○	◎			○	◎		B382	B567 -568
			PM-2BL/M/X		R1.0~R10.0	◎	◎	○	◎			○	◎		B383	B567 -568
			PM-2BFP		R0.5~R10.0	◎	◎	○	◎			○	◎		B384	B567 -568
		4	PM-4B		R1.5~R10.0	◎	◎	○	◎			○	◎		B385	B569

◎Very suitable ○Suitable

Solid carbide end mills overview

Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material									Page	
						P		M	K	N		S	H			
						Carbon steel, alloy steel	Pre-hardened steel	Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Heat resistant alloy, Titanium alloy	High hardness steel Below 55HRC	High hardness steel Above 55HRC	Specification	Cutting parameters
High-performance general milling	Ball nose	4	PM-4BL/M/X		R1.5~R10.0	◎	◎	○	◎			○	◎		B386	B569
	Taper neck ball nose	2	PM-2BC		R0.25~R2.0	◎	◎	○	◎			○	◎		B387 -390	B570 -572
	Radius	2	PM-2R		Ø1.0~ Ø12.0	◎	◎	○	◎			○	◎		B391 -392	B573
		4	PM-4R		Ø3.0~ Ø12.0	◎	◎	○	◎			○	◎		B393 -394	B574
			PM-4RBL/M/X		Ø4.0~ Ø10.0	◎	◎	○	◎			○	◎		B395 -396	B574
			PM-4R-H		Ø3.0~ Ø12.0	◎	◎	○	◎			○	◎		B397 -398	B574
			PM-4RBL/ M/X-H		Ø4.0~ Ø12.0	◎	◎	○	◎			○	◎		B399	B574
			PM-4RFP		Ø6.0~ Ø16.0	◎	◎	○	◎			○	◎		B400	B574
	High-feed-rate		PM-4H		Ø3.0~ Ø12.0	◎	◎	○	◎			○	◎		B401	B575 -576
			PM-4HL		Ø4.0~ Ø12.0	◎	◎	○	◎			○	◎		B402	B575 -576
General milling	Flattened	2	GM-2E (Corner protection)		Ø1.0~ Ø20.0	◎	◎	○	◎						B405	B577
			GM-2F (Sharp)		Ø1.0~ Ø20.0	◎	◎	○	◎						B406	B578
			GM-2EL (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎						B407	B577
			GM-2FL (Sharp)		Ø3.0~ Ø20.0	◎	◎	○	◎						B408	B578
			GM-2EX (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎						B409	B579
			GM-2EFP (Corner protection)		Ø6.0~ Ø20.0	◎	◎	○	◎						B410	B580
			GM-2EBL/X (Corner protection)		Ø3.0~ Ø12.0	◎	◎	○	◎						B411	B577
		3	GM-3E (Corner protection)		Ø1.0~ Ø20.0	◎	◎	○	◎						B412 -413	B581
			GM-3EL (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎						B414	B581
		4	GM-4E-G (Corner protection)		Ø1.0~ Ø20.0	◎	◎	○	◎						B415 -416	B582
			GM-4F-G (Sharp)		Ø1.0~ Ø20.0	◎	◎	○	◎						B417	B583
			GM-4EL-G (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎						B418	B582
		4	GM-4FL-G (Sharp)		Ø3.0~ Ø20.0	◎	◎	○	◎						B419	B583
			GM-4EX-G (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎						B420	B584
			GM-4EBL/X-G (Corner protection)		Ø3.0~ Ø12.0	◎	◎	○	◎						B421	B582

◎Very suitable ○Suitable

Solid carbide end mills overview

Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material: P – Carbon steel, alloy steel	P – Pre-hardened steel	M – Stainless steel	K – Cast iron	N – Copper alloy	N – Aluminum alloy	S – Heat resistant alloy, Titanium alloy	H – High hardness steel: Below 55HRC	H – High hardness steel: Above 55HRC	Page: Specification	Page: Cutting parameters
General milling	Flattened	4	GM-4E (Corner protection)		Ø1.0~ Ø20.0	◎	◎	○	◎						B422 -423	B585
			GM-4EL (Corner protection)		Ø3.0~ Ø20.0	◎	◎	○	◎						B424	B585
			GM-4EFP (Corner protection)		Ø6.0~ Ø20.0	◎	◎	○	◎						B425	B586
			GM-4EBL/X (Corner protection)		Ø3.0~ Ø12.0	◎	◎	○	◎						B426	B585
		6	GM-6E (Corner protection)		Ø6.0~ Ø20.0	◎	◎	○	◎						B427	B587
			GM-6EL (Corner protection)		Ø6.0~ Ø20.0	◎	◎	○	◎						B428	B588
	Long neck flattened	2	GM-2EP		Ø0.3~ Ø5.0	◎	◎	○	◎						B429 -430	B589 -590
	Tiny head flattened		GM-2ES		Ø0.3~ Ø3.0	◎	◎	○	◎						B431	B591
	Ball nose		GM-2B		R0.5~R10.0	◎	◎	○	◎						B432	B592
			GM-2BL/M/X		R1.0~R10.0	◎	◎	○	◎						B433	B592
			GM-2BFP		R0.5~R10.0	◎	◎	○	◎						B434	B592
		4	GM-4B		R1.5~R10.0	◎	◎	○	◎						B435	B593
			GM-4BL/M/X		R1.5~R10.0	◎	◎	○	◎						B436	B593
	Tiny ball nose	2	GM-2BS		R0.15~ R1.5	◎	◎	○	◎						B437	B594
	Long neck ball nose		GM-2BP		R0.15~R2.5	◎	◎	○	◎						B438 -439	B595 -596
	Radius		GM-2R		Ø1.0~Ø12.0	◎	◎	○	◎						B440	B597
		4	GM-4R		Ø1.0~Ø12.0	◎	◎	○	◎						B441	B598
			GM-4RL/M/X		Ø4.0~Ø16.0	◎	◎	○	◎						B442 -443	B598
	Corrugated edge		GM-4W		Ø6.0~Ø20.0	◎	◎	○	◎						B444	B599 -600
Machining high hardness steel	Flattened	2	HMX-2E (Corner protection)		Ø1.0~Ø20.0				○				◎	◎	B446 -447	B601
			HMX-2EFP (Corner protection)		Ø6.0~Ø20.0				○				◎	◎	B448	B602
			HMX-2EBL/X (Corner protection)		Ø3.0~Ø12.0				○				◎	◎	B449	B601
		4	HMX-4E (Corner protection)		Ø1.0~Ø20.0				○				◎	◎	B450 -451	B603
			HMX-4EL (Corner protection)		Ø3.0~Ø20.0				○				◎	◎	B452	B603
			HMX-4EFP (Corner protection)		Ø6.0~Ø20.0				○				◎	◎	B453	B604

◎Very suitable ○Suitable

Solid carbide end mills overview

Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material									Page	
						P		M	K	N		S	H			
						Carbon steel, alloy steel	Pre-hardened steel	Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Heat resistant alloy, Titanium alloy	High hardness steel Below 55HRC	High hardness steel Above 55HRC	Specification	Cutting parameters
Machining high hardness steel	Flattened	4	HMX-4EBL/X (Corner protection)		Ø3.0~Ø12.0				○				◎	◎	B454	B603
		6	HMX-6E (Corner protection)		Ø6.0~Ø20.0				○				◎	◎	B455	B605
			HMX-6EL (Corner protection)		Ø6.0~Ø20.0				○				◎	◎	B456	B606
	Long neck flattened	2	HMX-2EP		Ø0.3~Ø5.0				○				◎	◎	B457 -458	B607 -608
	Tiny head flattened		HMX-2ES		Ø0.3~Ø3.0				○				◎	◎	B459	B609
	Ball nose		HMX-2B		R0.5~R10.0				○				◎	◎	B460	B610
			HMX-2BL/M/X		R1.0~R10.0				○				◎	◎	B461	B610
			HMX-2BFP		R0.5~R10.0				○				◎	◎	B462	B610
		4	HMX-4B		R1.5~R10.0				○				◎	◎	B463	B611
			HMX-4BL		R1.5~R10.0				○				◎	◎	B464	B611
	Tiny ball nose	2	HMX-2BS		R0.15~R1.5				○				◎	◎	B465	B612
	Long neck ball nose		HMX-2BP		R0.15~R2.5				○				◎	◎	B466 -467	B613 -614
	Radius	4	HMX-4R		Ø1.0~Ø12.0				○				◎	◎	B468 -469	B615
			HMX-4RBL/M/X		Ø4.0~Ø12.0				○				◎	◎	B470	B615
			HMX-4RF		Ø6.0~Ø12.0				○				◎	◎	B471	B615
			HMX-4RP		Ø6.0~Ø16.0				○				◎	◎	B472	B615
		6	HMX-6R-MAX		Ø6.0~Ø20.0				○				◎	◎	B473	B616
Super alloy machining	Flattened	4	RM-4E		Ø6.0~Ø25.0	○		○				◎			B476	B617
		5	RM-5E		Ø10.0~Ø25.0	○		○				◎			B477	B617
		6	RM-6E		Ø10.0~Ø25.0	○		○				◎			B478	B618
	Ball nose	4	RM-4B		R3.0~R10.0	○		○				◎			B479	B621
	Radius		RM-4R		Ø6.0~Ø25.0	○		○				◎			B480 -482	B619
		5	RM-5R		Ø6.0~Ø25.0	○		○				◎			B483 -485	B619
		6	RM-6R		Ø10.0~Ø25.0	○		○				◎			B486	B620
		7	RM-7R		Ø10.0~Ø25.0	○		○				◎			B487 -488	B620

◎Very suitable ○Suitable

Solid carbide end mills overview

Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material									Page	
						P		M	K	N		S	H			
						Carbon steel, alloy steel	Pre-hardened steel	Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Heat resistant alloy, Titanium alloy	High hardness steel Below 55HRC	High hardness steel Above 55HRC	Specification	Cutting parameters
High performance general milling for stainless steel	Flattened	4	MM-4E		Ø1.0~Ø20.0	○		◎				○			B490	B622
			MM-4EF		Ø1.0~Ø20.0	○		◎				○			B491	B622
	Radius		MM-4R		Ø1.0~Ø20.0	○		◎				○			B492	B623
			MM-4RFP		Ø6.0~Ø20.0	○		◎				○			B493	B623
Machining titanium	Flattened	4	TM-4E		Ø6.0~Ø25.0	○		○				◎			B495	B624
	Ball nose		TM-4B		R3.0~R10.0	○		○				◎			B496	B624
	Radius		TM-4R		Ø6.0~Ø25.0	○		○				◎			B497 -499	B624
			TM-4RP		Ø8.0~Ø25.0	○		○				◎			B500	B624
		5	TM-5R		Ø6.0~Ø25.0	○		○				◎			B501 -502	B625
		6	TM-6R		Ø10.0~Ø25.0	○		○				◎			B503	B626
Copper machining	Flattened	2	NM-2E		Ø1.0~Ø12.0					◎	○				B505	B627
		4	NM-4E		Ø3.0~Ø12.0					◎	○				B506	B628
	Long neck flattened	2	NM-2EP		Ø0.5~Ø5.0					◎	○				B507	B629
	Ball nose		NM-2B		R0.5~R6.0					◎	○				B508	B630
	Long neck Ball nose		NM-2BP		R0.25~R2.5					◎	○				B509	B631
High-efficiency milling for Al	Flattened	3	ALU-3E		Ø3.0~Ø20.0					○	◎				B513	B632
Machining aluminum	Flattened	2	AL-2E		Ø1.0~Ø20.0						◎				B515	B633
			AL-2EL		Ø3.0~Ø20.0						◎				B516	B633
		3	AL-3E		Ø1.0~Ø20.0						◎				B517	B634
			AL-3EL		Ø3.0~Ø20.0						◎				B518	B634
	Ball nose	2	AL-2B		R1.0~R6.0						◎				B519	B635
	Corrugated edge	3	AL-3W		Ø6.0~Ø20.0						◎				B520	B636
	Radius (Super high speed)	2	AL-2R-AIR		Ø6.0~Ø20.0						◎				B521	B637
			AL-2RL-AIR		Ø6.0~Ø20.0						◎				B522	B637
		3	AL-3R-AIR		Ø12.0~Ø20.0						◎				B523	B638

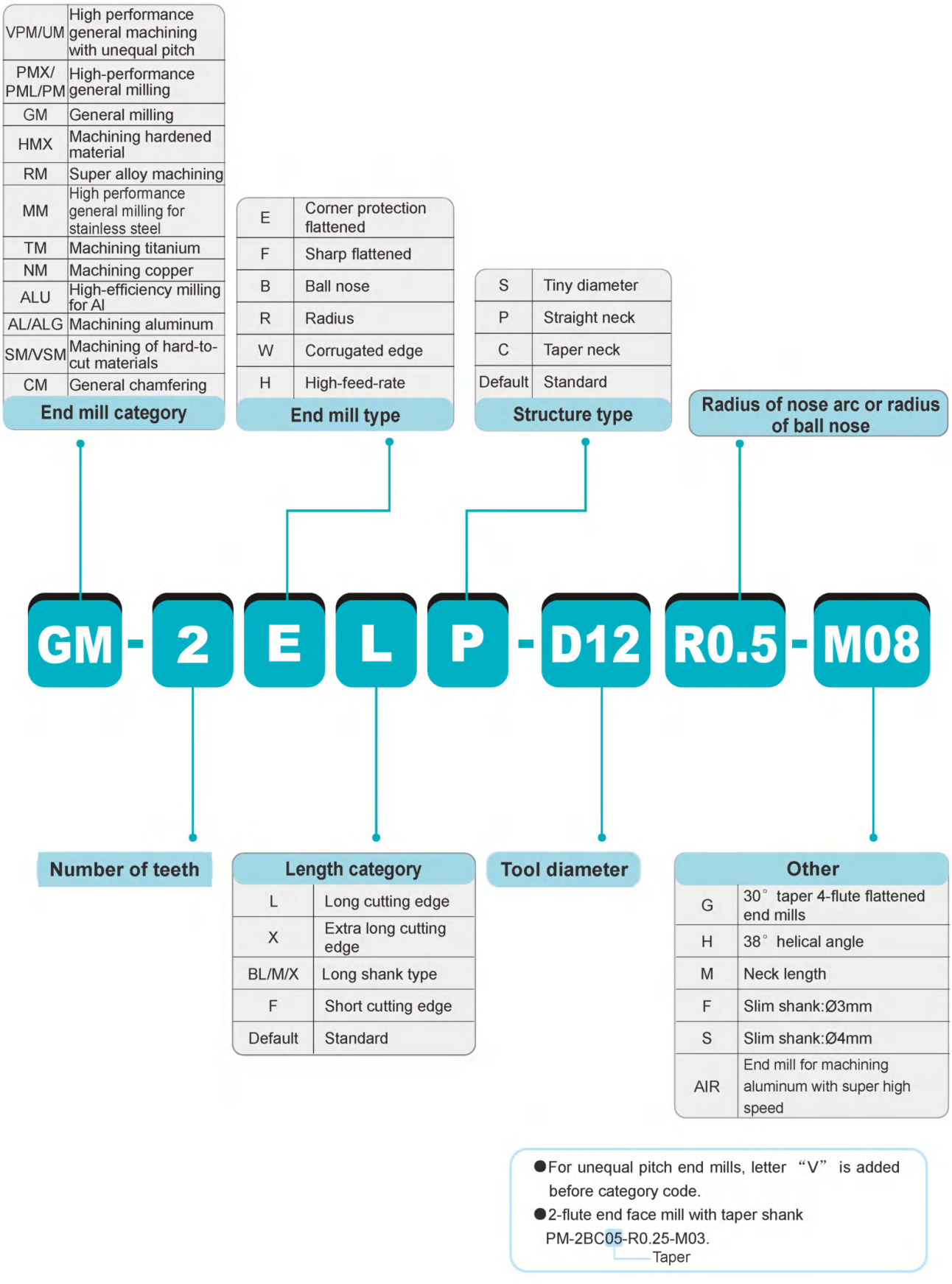
◎Very suitable ○Suitable

Solid carbide end mills overview

Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material								Page	
						P		M	K	N		S	H		
						Carbon steel, alloy steel	Pre-hardened steel	Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Heat resistant alloy, Titanium alloy	High hardness steel: Below 55HRC	Specification	Cutting parameters
													High hardness steel: Above 55HRC		
Machining aluminum	Radius (Super high speed)	3	AL-3RL-AIR		Ø12.0~Ø20.0						◎			B524	B638
	Flattened	2	ALG-2E		Ø1.0~Ø20.0						◎			B526	B639
		3	ALG-3E		Ø1.0~Ø20.0						◎			B527	B640
	Radius	2	ALG-2R		Ø1.0~Ø12.0						◎			B528	B641
		3	ALG-3R		Ø1.0~Ø12.0						◎			B529	B642
Machining of hard-to-cut materials	Flattened	3	SM-3E		Ø3.0~Ø20.0	◎		◎				○		B532	B643
		4	VSM-4E (Unequal pitch)		Ø4.0~Ø20.0	◎		◎				◎		B533	B644
			VSM-4EFP (Unequal pitch)		Ø6.0~Ø16.0	◎		◎				◎		B534	B644
	Radius	4	SM-4R		Ø6.0~Ø12.0	◎		◎				○		B535	B645
			VSM-4R (Unequal pitch)		Ø6.0~Ø20.0	◎		◎				◎		B536	B646
			VSM-4RFP (Unequal pitch)		Ø6.0~Ø16.0	◎		◎				◎		B537	B646
Chamfering	Flattened	2	CM-2E		Ø3.0~Ø16.0	◎	◎	○	○	◎	◎	○	◎	B538	--
		4	CM-4E		Ø3.0~Ø16.0	◎	◎	○	○	◎	◎	○	◎	B539	--

◎Very suitable ○Suitable

Solid carbide end mills code key



- For unequal pitch end mills, letter "V" is added before category code.
- 2-flute end face mill with taper shank PM-2BC05-R0.25-M03.
  Taper

Coating of mills

Coated NaNo TiAlCrN	Super nanometer crystal TiAlCrN coating
Coated NaNo TiAlXN	Super crystal nano heat resistant TiAlXN coatings
Coated NaNo TiAlN	Nano TiAlN coating
Coated TiAlN	TiAlN coating
Coated AlTiN	AlTiN coating
Coated CrN	CrN coating
Coated AlCrXN	AlCrXN coating
Coated TiALXN	TiALXN coating
Coated AlCrXN-Plus	AlCrXN-Plus coating

End tooth type of mills

	2-flute flattened end mills		4-flute R end mills
	2-flute ball nose end mills		5-flute flattened end mills
	2-flute R end mills		5-flute R end mills
	3-flute flattened end mills		6-flute flattened end mills
	3-flute R end mills		6-flute R end mills
	4-flute flattened end mills		7-flute R end mills
	4-flute ball nose end mills		

Helical angle

β	β is helical angle: 30° ,35° ,38° ,45° ,55°

Cutting diameter tolerance

DC DC≤12 0~-0.020 12<DC 0~-0.030	Cutting diameter tolerance

Radius tolerance of ball nose end mills

PRFRAD PRFRAD±0.01	Radius tolerance

Nose type

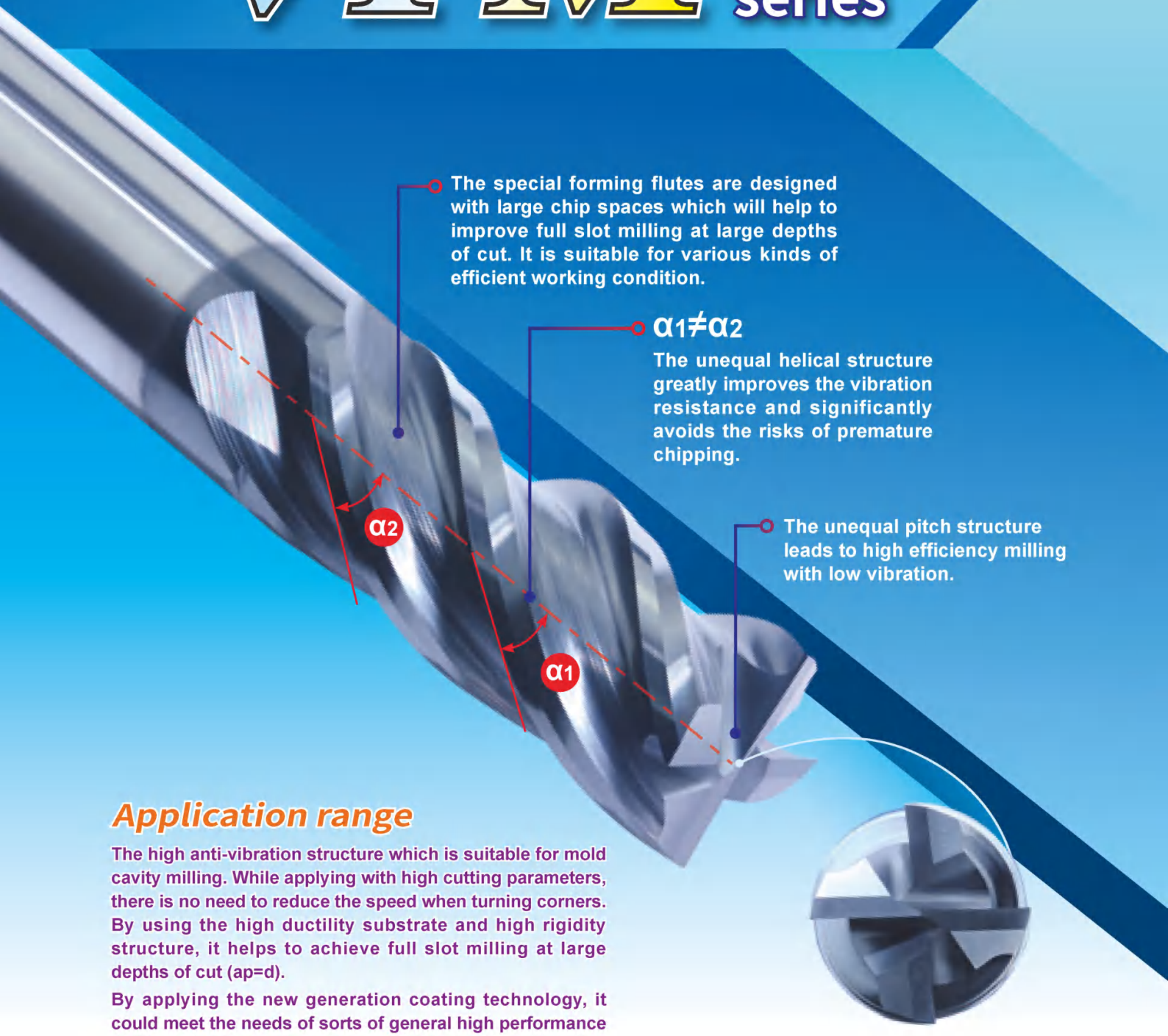
	Corner protection
	Sharp

Machining operation

Side face	Flattened end mills for side machining
Step shoulder	Flattened end mills for shoulder machining
Straight slot	Flattened end mills for straight slot machining
Deep flattened slot	Flattened end mills for deep slot machining
Profile	Ball nose end mills for profile machining
Cavity	Ball nose end mills for cavity machining
Ball nose slot	Ball nose end mills for slot machining
Deep ball nose slot	Ball nose end mills for deep slot machining
Radius shoulder	R end mills for side machining
Radius corner slot	R end mills for slot machining
Profile	R end mills for profile machining
Chamferring	Chamferring

High Performance End mills for General Machining

VPM series



The special forming flutes are designed with large chip spaces which will help to improve full slot milling at large depths of cut. It is suitable for various kinds of efficient working condition.

$\alpha_1 \neq \alpha_2$

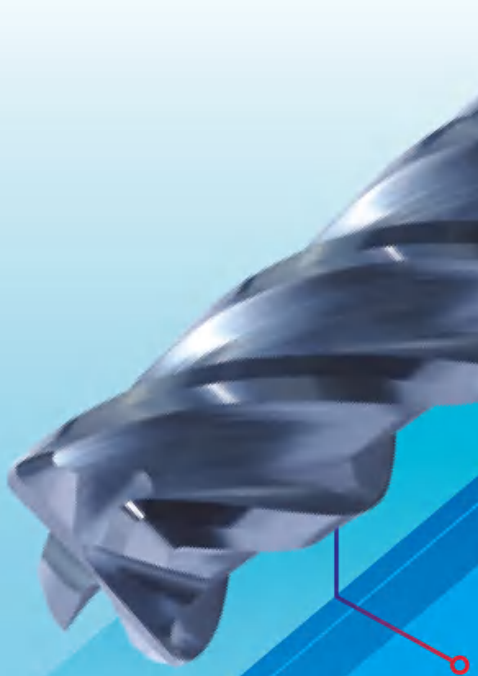
The unequal helical structure greatly improves the vibration resistance and significantly avoids the risks of premature chipping.

The unequal pitch structure leads to high efficiency milling with low vibration.

Application range

The high anti-vibration structure which is suitable for mold cavity milling. While applying with high cutting parameters, there is no need to reduce the speed when turning corners. By using the high ductility substrate and high rigidity structure, it helps to achieve full slot milling at large depths of cut (ap=d).

By applying the new generation coating technology, it could meet the needs of sorts of general high performance steel machining for dry and wet conditions.



Substrate and coating

By selecting the substrate with high versatility and wear resistance, it offers better bending stiffness to meet efficient machining requirements.

Coating grades with lower friction coefficient, especially are suitable for machining carbon steel, mild steel, stainless steel and other viscous materials.

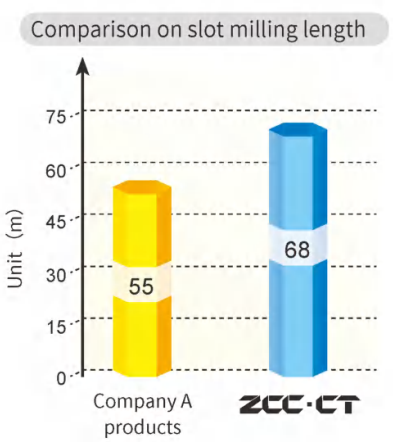
CASE 1

Cutting tool: VPM-4E-D8.0
Method: Side milling
Workpiece material: 45#
Cutting parameters: Vc=190m/min, fz=0.08mm/z, ap=12mm, ae=2.4mm
CNC Machine type:
5-Axis Vertical Machining Center
Cooling method: Emulsion
Overhang: 24mm

Test result: After processing 120 meters, the normal flank wear of our cutting tool reaches 0.039mm which can still work.

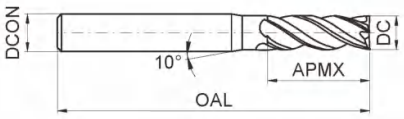
CASE 2

Cutting tool: VPM-4E-D8.0
Method: Slot milling
Workpiece material: 45#
Cutting parameters: Vc=150m/min, fr=0.2mm/r, ap=8mm
CNC Machine type: 5-Axis Vertical Machining Center
Cooling method: Emulsion
Overhang: 24mm

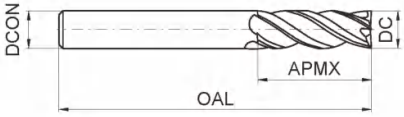


4-flute unequal pitch flattened end mills with straight shank

VPM-4E

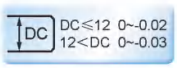


Picture 1



Picture 2

- Suitable for high-efficient machining of ordinary steel and cast iron.
- Differential helical angle and pitch design offer high vibration resistance.
- Suitable for machining of large depth and width of cut.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
VPM-4E-D3.0S	3.0	4	8	50	4	Picture 1	●
VPM-4E-D3.0	3.0	6	8	50	4	Picture 1	●
VPM-4E-D3.5S	3.5	4	10	50	4	Picture 1	●
VPM-4E-D3.5	3.5	6	10	50	4	Picture 1	●
VPM-4E-D4.0S	4.0	4	11	50	4	Picture 2	●
VPM-4E-D4.0	4.0	6	11	50	4	Picture 1	●
VPM-4E-D4.5	4.5	6	11	50	4	Picture 1	●
VPM-4E-D5.0	5.0	6	13	50	4	Picture 1	●
VPM-4E-D5.5	5.5	6	16	50	4	Picture 1	●
VPM-4E-D6.0	6.0	6	16	50	4	Picture 2	●
VPM-4E-D7.0	7.0	8	20	60	4	Picture 1	●
VPM-4E-D8.0	8.0	8	20	60	4	Picture 2	●
VPM-4E-D9.0	9.0	10	22	75	4	Picture 1	●
VPM-4E-D10.0	10.0	10	25	75	4	Picture 2	●
VPM-4E-D11.0	11.0	12	26	75	4	Picture 1	●
VPM-4E-D12.0	12.0	12	30	75	4	Picture 2	●
VPM-4E-D14.0	14.0	14	32	75	4	Picture 2	●
VPM-4E-D16.0	16.0	16	45	100	4	Picture 2	●
VPM-4E-D18.0	18.0	18	45	100	4	Picture 2	●
VPM-4E-D20.0	20.0	20	45	100	4	Picture 2	●

● Stock available ○ Make-to-order

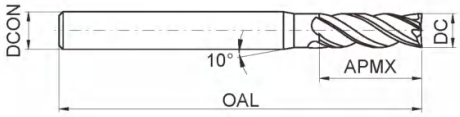
Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	◎	○			◎				

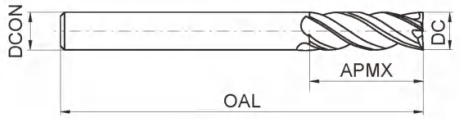
Code key B294
Graphics category and identification B295
Cutting parameters B540
Non-standard customization B652-B653

4-flute flattened end mills with long shank

VPM-4EBL/X

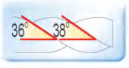


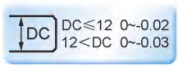
Picture 1



Picture 2

● VPM-4E series with long shank.





Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
VPM-4EBL-D3.0S	3.0	4	8	75	4	Picture 1	○
VPM-4EBL-D3.0	3.0	6	8	75	4	Picture 1	○
VPM-4EBL-D4.0S	4.0	4	11	75	4	Picture 2	○
VPM-4EBL-D4.0	4.0	6	11	75	4	Picture 1	○
VPM-4EBL-D5.0	5.0	6	13	75	4	Picture 1	○
VPM-4EBL-D6.0	6.0	6	16	75	4	Picture 2	○
VPM-4EBX-D6.0	6.0	6	16	100	4	Picture 2	○
VPM-4EBL-D8.0	8.0	8	20	75	4	Picture 2	○
VPM-4EBX-D8.0	8.0	8	20	100	4	Picture 2	○
VPM-4EBL-D10.0	10.0	10	25	100	4	Picture 2	○
VPM-4EBL-D12.0	12.0	12	30	100	4	Picture 2	○
VPM-4EBL-D16.0	16.0	16	45	150	4	Picture 2	○
VPM-4EBL-D20.0	20.0	20	45	150	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

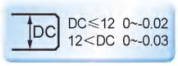
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	◎	○			◎				

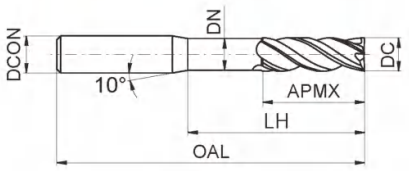
Code key B294
Graphics category and identification B295
Cutting parameters B540
Non-standard customization B652-B653

4-flute unequal pitch flattened end mills with straight shank, long neck and short cutting edge

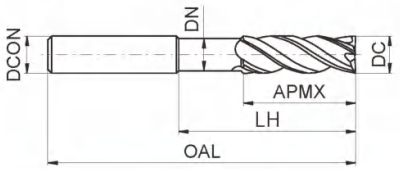
VPM-4EFP

- Suitable for high-efficient machining of ordinary steel and cast iron.
- Differential helical angle and pitch design offer high vibration resistance.
- Suitable for machining of large depth and width of cut.





Picture 1



Picture 2

Type	Basic dimension(mm)						Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	LH	DN	OAL			
VPM-4EFP-D3.0S	3.0	4	4.5	15	2.8	75	4	Picture 1	○
VPM-4EFP-D3.0	3.0	6	4.5	15	2.8	75	4	Picture 1	○
VPM-4EFP-D4.0S	4.0	4	6.0	20	3.8	75	4	Picture 2	○
VPM-4EFP-D4.0	4.0	6	6.0	20	3.8	75	4	Picture 1	○
VPM-4EFP-D5.0	5.0	6	8.0	25	4.8	75	4	Picture 1	○
VPM-4EFP-D6.0	6.0	6	9.0	30	5.8	75	4	Picture 2	○
VPM-4EFP-D8.0	8.0	8	12.0	40	7.8	100	4	Picture 2	○
VPM-4EFP-D10.0	10.0	10	15.0	50	9.5	100	4	Picture 2	○
VPM-4EFP-D12.0	12.0	12	18.0	50	11.5	100	4	Picture 2	○
VPM-4EFP-D16.0	16.0	16	24.0	60	15.5	150	4	Picture 2	○
VPM-4EFP-D20.0	20.0	20	30.0	60	19.5	150	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	◎	○			◎				

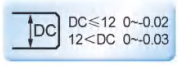
Code key B294
Graphics category and identification B295
Cutting parameters B540
Non-standard customization B652-B653

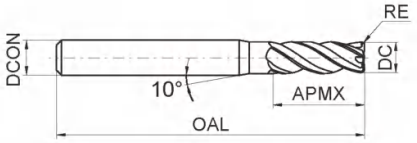
4-flute unequal pitch R end mills with straight shank

Radius shoulder Profile Radius corner slot

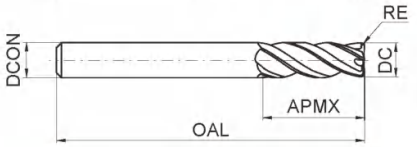
VPM-4R

- Suitable for high-efficient machining of ordinary steel and cast iron.
- Differential helical angle and pitch design offer high vibration resistance.
- Suitable for machining of large depth and width of cut.





Picture 1



Picture 2

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
VPM-4R-D3.0R0.2S	3.0	0.2	4	8	50	4	Picture 1	●
VPM-4R-D3.0R0.2	3.0	0.2	6	8	50	4	Picture 1	●
VPM-4R-D3.0R0.3S	3.0	0.3	4	8	50	4	Picture 1	●
VPM-4R-D3.0R0.3	3.0	0.3	6	8	50	4	Picture 1	●
VPM-4R-D4.0R0.2S	4.0	0.2	4	11	50	4	Picture 2	●
VPM-4R-D4.0R0.2	4.0	0.2	6	11	50	4	Picture 1	●
VPM-4R-D4.0R0.3S	4.0	0.3	4	11	50	4	Picture 2	●
VPM-4R-D4.0R0.3	4.0	0.3	6	11	50	4	Picture 1	●
VPM-4R-D4.0R0.5S	4.0	0.5	4	11	50	4	Picture 2	●
VPM-4R-D4.0R0.5	4.0	0.5	6	11	50	4	Picture 1	●
VPM-4R-D5.0R0.3	5.0	0.3	6	13	50	4	Picture 1	●
VPM-4R-D5.0R0.5	5.0	0.5	6	13	50	4	Picture 1	●
VPM-4R-D5.0R1.0	5.0	1.0	6	13	50	4	Picture 1	●
VPM-4R-D6.0R0.3	6.0	0.3	6	16	50	4	Picture 2	●
VPM-4R-D6.0R0.5	6.0	0.5	6	16	50	4	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	◎	○			◎				

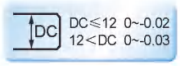
Code key B294 Graphics category and identification B295 Cutting parameters B541 Non-standard customization B652-B653

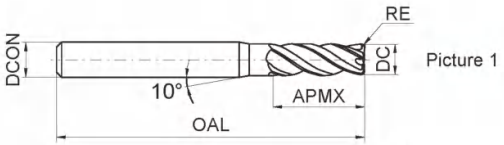
4-flute unequal pitch R end mills with straight shank

Radius shoulder | Profile | Radius corner slot

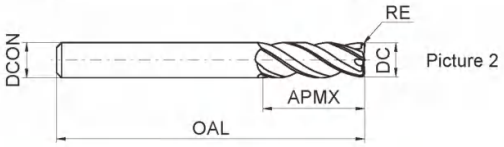
VPM-4R

- Suitable for high-efficient machining of ordinary steel and cast iron.
- Differential helical angle and pitch design offer high vibration resistance.
- Suitable for machining of large depth and width of cut.





Picture 1



Picture 2

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
VPM-4R-D6.0R1.0	6.0	1.0	6	16	50	4	Picture 2	●
VPM-4R-D8.0R0.3	8.0	0.3	8	20	60	4	Picture 2	●
VPM-4R-D8.0R0.5	8.0	0.5	8	20	60	4	Picture 2	●
VPM-4R-D8.0R1.0	8.0	1.0	8	20	60	4	Picture 2	●
VPM-4R-D10.0R0.3	10.0	0.3	10	25	75	4	Picture 2	●
VPM-4R-D10.0R0.5	10.0	0.5	10	25	75	4	Picture 2	●
VPM-4R-D10.0R1.0	10.0	1.0	10	25	75	4	Picture 2	●
VPM-4R-D10.0R1.5	10.0	1.5	10	25	75	4	Picture 2	●
VPM-4R-D10.0R2.0	10.0	2.0	10	25	75	4	Picture 2	●
VPM-4R-D12.0R0.3	12.0	0.3	12	30	75	4	Picture 2	●
VPM-4R-D12.0R0.5	12.0	0.5	12	30	75	4	Picture 2	●
VPM-4R-D12.0R1.0	12.0	1.0	12	30	75	4	Picture 2	●
VPM-4R-D12.0R1.5	12.0	1.5	12	30	75	4	Picture 2	●
VPM-4R-D12.0R2.0	12.0	2.0	12	30	75	4	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

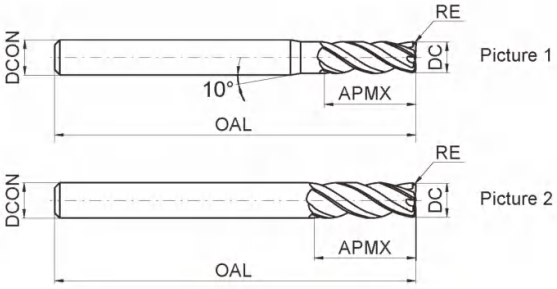
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	◎	○			◎				

Code key B294 | Graphics category and identification B295 | Cutting parameters B541 | Non-standard customization B652-B653

4-flute R end mills with long shank

Radius shoulder Profile Radius corner slot

VPM-4RBL/X



● VPM-4R series with long shank.

36° 38° Coated AlCrXN DC DC≤12 0~-0.02 12<DC 0~-0.03

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
VPM-4RBL-D3.0R0.2S	3.0	0.2	4	8	75	4	Picture 1	○
VPM-4RBL-D3.0R0.2	3.0	0.2	6	8	75	4	Picture 1	○
VPM-4RBL-D3.0R0.3S	3.0	0.3	4	8	75	4	Picture 1	○
VPM-4RBL-D3.0R0.3	3.0	0.3	6	8	75	4	Picture 1	○
VPM-4RBL-D4.0R0.2S	4.0	0.2	4	11	75	4	Picture 2	○
VPM-4RBL-D4.0R0.2	4.0	0.2	6	11	75	4	Picture 1	○
VPM-4RBL-D4.0R0.3S	4.0	0.3	4	11	75	4	Picture 2	○
VPM-4RBL-D4.0R0.3	4.0	0.3	6	11	75	4	Picture 1	○
VPM-4RBL-D4.0R0.5S	4.0	0.5	4	11	75	4	Picture 2	○
VPM-4RBL-D4.0R0.5	4.0	0.5	6	11	75	4	Picture 1	○
VPM-4RBL-D6.0R0.3	6.0	0.3	6	16	75	4	Picture 2	○
VPM-4RBL-D6.0R0.5	6.0	0.5	6	16	75	4	Picture 2	○
VPM-4RBL-D6.0R1.0	6.0	1.0	6	16	75	4	Picture 2	○
VPM-4RBX-D6.0R0.3	6.0	0.3	6	16	100	4	Picture 2	○
VPM-4RBX-D6.0R0.5	6.0	0.5	6	16	100	4	Picture 2	○
VPM-4RBX-D6.0R1.0	6.0	1.0	6	16	100	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	◎	○			◎				

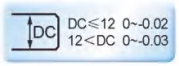
Code key B294 Graphics category and identification B295 Cutting parameters B541 Non-standard customization B652-B653

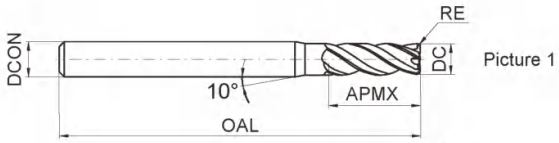
4-flute R end mills with long shank

Radius shoulder Profile Radius corner slot

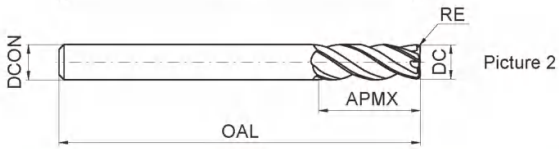
VPM-4RBL/X

- VPM-4R series with long shank.





Picture 1



Picture 2

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
VPM-4RBL-D8.0R0.3	8.0	0.3	8	20	75	4	Picture 2	○
VPM-4RBL-D8.0R0.5	8.0	0.5	8	20	75	4	Picture 2	○
VPM-4RBL-D8.0R1.0	8.0	1.0	8	20	75	4	Picture 2	○
VPM-4RBX-D8.0R0.3	8.0	0.3	8	20	100	4	Picture 2	○
VPM-4RBX-D8.0R0.5	8.0	0.5	8	20	100	4	Picture 2	○
VPM-4RBX-D8.0R1.0	8.0	1.0	8	20	100	4	Picture 2	○
VPM-4RBL-D10.0R0.3	10.0	0.3	10	25	100	4	Picture 2	○
VPM-4RBL-D10.0R0.5	10.0	0.5	10	25	100	4	Picture 2	○
VPM-4RBL-D10.0R1.0	10.0	1.0	10	25	100	4	Picture 2	○
VPM-4RBL-D10.0R1.5	10.0	1.5	10	25	100	4	Picture 2	○
VPM-4RBL-D10.0R2.0	10.0	2.0	10	25	100	4	Picture 2	○
VPM-4RBL-D12.0R0.3	12.0	0.3	12	30	100	4	Picture 2	○
VPM-4RBL-D12.0R0.5	12.0	0.5	12	30	100	4	Picture 2	○
VPM-4RBL-D12.0R1.0	12.0	1.0	12	30	100	4	Picture 2	○
VPM-4RBL-D12.0R1.5	12.0	1.5	12	30	100	4	Picture 2	○
VPM-4RBL-D12.0R2.0	12.0	2.0	12	30	100	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	◎	○			◎				

Code key B294 Graphics category and identification B295 Cutting parameters B541 Non-standard customization B652-B653

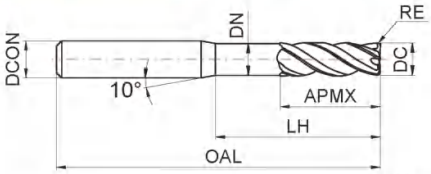
4-flute long neck and short cutting edge unequal pitch R end mills with straight shank

Radius shoulder Profile Radius corner slot

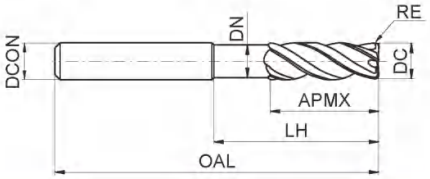
VPM-4RFP

- Suitable for high-efficient machining of ordinary steel and cast iron.
- Differential helical angle and pitch design offer high vibration resistance.
- Suitable for machining of large depth and width of cut.

36° 38° | Coated AlCrXN | DC DC≤12 0~-0.02 12<DC 0~-0.03



Picture 1



Picture 2

Type	Basic dimension(mm)							Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	LH	DN	OAL			
VPM-4RFP-D3.0R0.2S	3.0	0.2	4	3	9	2.8	75	4	Picture 1	○
VPM-4RFP-D3.0R0.2	3.0	0.2	6	3	9	2.8	75	4	Picture 1	○
VPM-4RFP-D3.0R0.3S	3.0	0.3	4	3	9	2.8	75	4	Picture 1	○
VPM-4RFP-D3.0R0.3	3.0	0.3	6	3	9	2.8	75	4	Picture 1	○
VPM-4RFP-D4.0R0.2S	4.0	0.2	4	4	12	3.8	75	4	Picture 2	○
VPM-4RFP-D4.0R0.2	4.0	0.2	6	4	12	3.8	75	4	Picture 1	○
VPM-4RFP-D4.0R0.3S	4.0	0.3	4	4	12	3.8	75	4	Picture 2	○
VPM-4RFP-D4.0R0.3	4.0	0.3	6	4	12	3.8	75	4	Picture 1	○
VPM-4RFP-D4.0R0.5S	4.0	0.5	4	4	12	3.8	75	4	Picture 2	○
VPM-4RFP-D4.0R0.5	4.0	0.5	6	4	12	3.8	75	4	Picture 1	○
VPM-4RFP-D6.0R0.3	6.0	0.3	6	6	18	5.8	75	4	Picture 2	○
VPM-4RFP-D6.0R0.5	6.0	0.5	6	6	18	5.8	75	4	Picture 2	○
VPM-4RFP-D6.0R1.0	6.0	1.0	6	6	18	5.8	75	4	Picture 2	○
VPM-4RFP-D8.0R0.3	8.0	0.3	8	8	24	7.8	75	4	Picture 2	○
VPM-4RFP-D8.0R0.5	8.0	0.5	8	8	24	7.8	75	4	Picture 2	○
VPM-4RFP-D8.0R1.0	8.0	1.0	8	8	24	7.8	75	4	Picture 2	○
VPM-4RFP-D10.0R0.3	10.0	0.3	10	10	30	9.5	100	4	Picture 2	○
VPM-4RFP-D10.0R0.5	10.0	0.5	10	10	30	9.5	100	4	Picture 2	○
VPM-4RFP-D10.0R1.0	10.0	1.0	10	10	30	9.5	100	4	Picture 2	○
VPM-4RFP-D10.0R1.5	10.0	1.5	10	10	30	9.5	100	4	Picture 2	○
VPM-4RFP-D10.0R2.0	10.0	2.0	10	10	30	9.5	100	4	Picture 2	○
VPM-4RFP-D12.0R0.3	12.0	0.3	12	12	36	11.5	100	4	Picture 2	○
VPM-4RFP-D12.0R0.5	12.0	0.5	12	12	36	11.5	100	4	Picture 2	○
VPM-4RFP-D12.0R1.0	12.0	1.0	12	12	36	11.5	100	4	Picture 2	○
VPM-4RFP-D12.0R1.5	12.0	1.5	12	12	36	11.5	100	4	Picture 2	○
VPM-4RFP-D12.0R2.0	12.0	2.0	12	12	36	11.5	100	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	◎	○			◎				

Code key B294 | Graphics category and identification B295 | Cutting parameters B541 | Non-standard customization B652-B653

High-performance general machining end mills

UM Series

- Unequal pitch and variable inclined angle design reduce vibration risk and ensure better machining stability.
- Variable flute depth design improves rigidity for higher chip removal capacity.

Application range:

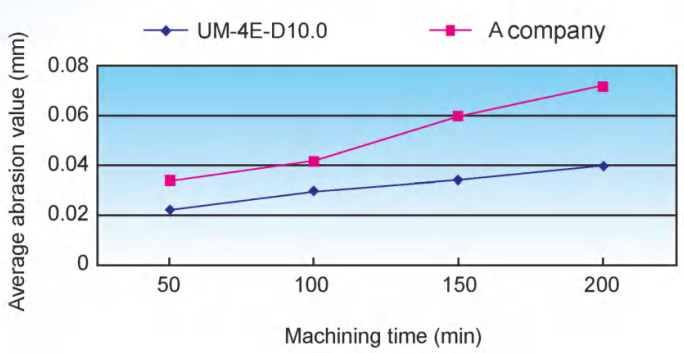
Suitable for high effectively machining of cast iron, carbon, alloy steel, pre-hardened steel, quenched and tempered steel, hardened steel under HRC55, etc.

Excellent machining stability under weak rigidity working condition such as thin-walled parts, parts corner, large overhang, etc.

Machining case:

Workpiece material: 42CrMo (HRC35)
Cutting style: side milling
Tool type: UM-4E-D10.0
Cutting parameters: n=6000r/min,
f_z=0.16mm/z,
a_p=10mm, a_e=1mm

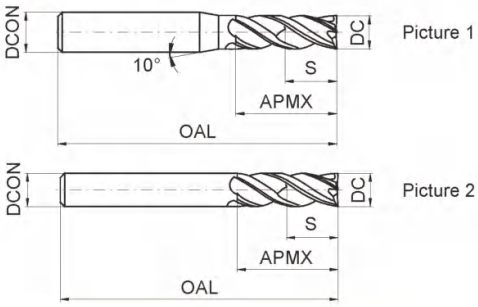
Comparison of tool wear



4-flute unequal pitch flattened end mills with straight shank

Side face | Step shoulder | Straight slot

UM-4E



38°,41° | Coated AlTiN | DC DC≤12 0~-0.020 12<DC 0~-0.030

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	S	OAL			
UM-4E-D4.0S	4.0	4	11	6.00	50	4	Picture 2	○
UM-4E-D4.0	4.0	6	11	6.00	50	4	Picture 1	○
UM-4E-D4.5	4.5	6	11	6.75	50	4	Picture 1	○
UM-4E-D5.0	5.0	6	13	7.50	50	4	Picture 1	○
UM-4E-D5.5	5.5	6	16	8.25	50	4	Picture 1	○
UM-4E-D6.0	6.0	6	16	9.00	50	4	Picture 2	○
UM-4E-D7.0	7.0	8	20	10.5	60	4	Picture 1	○
UM-4E-D8.0	8.0	8	20	12.0	60	4	Picture 2	○
UM-4E-D9.0	9.0	10	22	13.5	75	4	Picture 1	○
UM-4E-D10.0	10.0	10	25	15.0	75	4	Picture 2	○
UM-4E-D11.0	11.0	12	26	16.5	75	4	Picture 1	○
UM-4E-D12.0	12.0	12	30	18.0	75	4	Picture 2	○
UM-4E-D14.0	14.0	14	32	21.0	75	4	Picture 2	○
UM-4E-D16.0	16.0	16	45	24.0	100	4	Picture 2	○
UM-4E-D18.0	18.0	18	45	27.0	100	4	Picture 2	○
UM-4E-D20.0	20.0	20	45	30.0	100	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	◎	◎		○	◎			○	○

Code key B294 | Graphics category and identification B295 | Cutting parameters B542-B543 | Non-standard customization B652-B653

4-flute long cutting edge and unequal pitch flattened end mills with straight shank

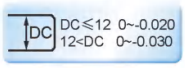

Side face

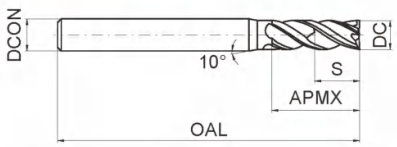

Step shoulder


Straight slot

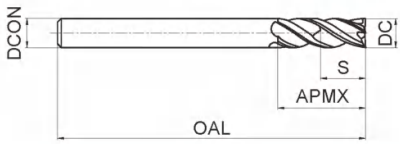
UM-4EL

● UM-4E series with long cutting edge.





Picture 1



Picture 2

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	S	OAL			
UM-4EL-D4.0	4.0	6	15	6.00	75	4	Picture 1	○
UM-4EL-D5.0	5.0	6	20	7.50	75	4	Picture 1	○
UM-4EL-D6.0	6.0	6	20	9.00	75	4	Picture 2	○
UM-4EL-D8.0	8.0	8	25	12.0	100	4	Picture 2	○
UM-4EL-D10.0	10.0	10	30	15.0	100	4	Picture 2	○
UM-4EL-D12.0	12.0	12	35	18.0	100	4	Picture 2	○
UM-4EL-D14.0	14.0	14	40	21.0	100	4	Picture 2	○
UM-4EL-D16.0	16.0	16	50	24.0	150	4	Picture 2	○
UM-4EL-D20.0	20.0	20	55	30.0	150	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	◎	◎		○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B542-B543
Non-standard customization B652-B653

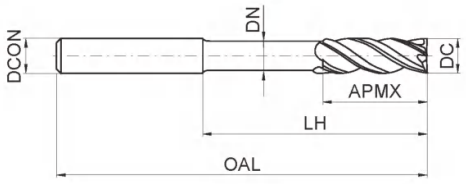
4-flute unequal pitch flattened end mills with long neck, short cutting edge and straight shank

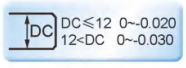

Side face


Step shoulder


Straight slot

UM-4EFP





Type	Basic dimension(mm)						Number of teeth Z	Stock
	DC	DCON	APMX	LH	DN	OAL		
UM-4EFP-D6.0	6.0	6	9	30	5.8	75	4	○
UM-4EFP-D8.0	8.0	8	12	40	7.8	100	4	○
UM-4EFP-D10.0	10.0	10	15	50	9.6	100	4	○
UM-4EFP-D12.0	12.0	12	18	50	11.5	100	4	○
UM-4EFP-D16.0	16.0	16	24	50	15.5	150	4	○
UM-4EFP-D20.0	20.0	20	30	60	19.5	150	4	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

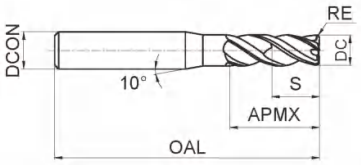
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	◎	◎		○	◎			○	○

Code key B294 Graphics category and identification B295 Cutting parameters B544-B545 Non-standard customization B652-B653

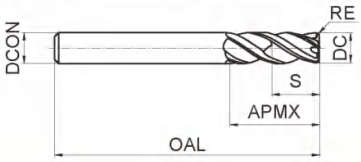
4-flute unequal pitch R end mills with straight shank

Radius shoulder Profile Radius corner slot

UM-4R



Picture 1



Picture 2

38°,41° Coated AlTiN DC DC≤12 0~-0.020 12<DC 0~-0.030

Type	Basic dimension(mm)						Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	S	OAL			
UM-4R-D4.0R0.3	4.0	0.3	6	10	6.0	50	4	Picture 1	○
UM-4R-D4.0R0.5	4.0	0.5	6	10	6.0	50	4	Picture 1	○
UM-4R-D5.0R0.5	5.0	0.5	6	13	7.5	50	4	Picture 1	○
UM-4R-D5.0R1.0	5.0	1.0	6	13	7.5	50	4	Picture 1	○
UM-4R-D6.0R0.5	6.0	0.5	6	16	9.0	50	4	Picture 2	○
UM-4R-D6.0R1.0	6.0	1.0	6	16	9.0	50	4	Picture 2	○
UM-4R-D8.0R0.5	8.0	0.5	8	20	12	60	4	Picture 2	○
UM-4R-D8.0R1.0	8.0	1.0	8	20	12	60	4	Picture 2	○
UM-4R-D10.0R0.5	10.0	0.5	10	25	15	75	4	Picture 2	○
UM-4R-D10.0R1.0	10.0	1.0	10	25	15	75	4	Picture 2	○
UM-4R-D10.0R2.0	10.0	2.0	10	25	15	75	4	Picture 2	○
UM-4R-D10.0R3.0	10.0	3.0	10	25	15	75	4	Picture 2	○
UM-4R-D12.0R0.5	12.0	0.5	12	30	18	75	4	Picture 2	○
UM-4R-D12.0R1.0	12.0	1.0	12	30	18	75	4	Picture 2	○
UM-4R-D12.0R2.0	12.0	2.0	12	30	18	75	4	Picture 2	○
UM-4R-D12.0R3.0	12.0	3.0	12	30	18	75	4	Picture 2	○
UM-4R-D16.0R1.0	16.0	1.0	16	45	24	100	4	Picture 2	○
UM-4R-D16.0R2.0	16.0	2.0	16	45	24	100	4	Picture 2	○
UM-4R-D16.0R3.0	16.0	3.0	16	45	24	100	4	Picture 2	○
UM-4R-D20.0R1.0	20.0	1.0	20	45	30	100	4	Picture 2	○
UM-4R-D20.0R2.0	20.0	2.0	20	45	30	100	4	Picture 2	○
UM-4R-D20.0R3.0	20.0	3.0	20	45	30	100	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

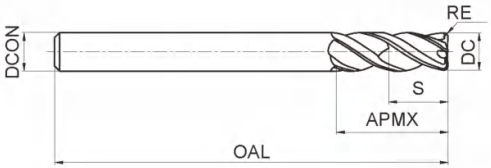
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	◎	◎		○	◎			○	○

Code key B294 Graphics category and identification B295 Cutting parameters B546-B547 Non-standard customization B652-B653

4-flute long cutting edge and unequal pitch R end mills with straight shank

Radius shoulder Profile Radius corner slot

UM-4RL



● UM-4R series with cutting edge.

38°,41° Coated AlTiN DC DC≤12 0~-0.020 12<DC 0~-0.030

Type	Basic dimension(mm)						Number of teeth Z	Stock
	DC	RE	DCON	APMX	S	OAL		
UM-4RL-D6.0R0.5	6.0	0.5	6	16	9	75	4	○
UM-4RL-D6.0R1.0	6.0	1.0	6	16	9	75	4	○
UM-4RL-D8.0R0.5	8.0	0.5	8	20	12	100	4	○
UM-4RL-D8.0R1.0	8.0	1.0	8	20	12	100	4	○
UM-4RL-D10.0R0.5	10.0	0.5	10	25	15	100	4	○
UM-4RL-D10.0R1.0	10.0	1.0	10	25	15	100	4	○
UM-4RL-D10.0R2.0	10.0	2.0	10	25	15	100	4	○
UM-4RL-D12.0R0.5	12.0	0.5	12	30	18	100	4	○
UM-4RL-D12.0R1.0	12.0	1.0	12	30	18	100	4	○
UM-4RL-D12.0R2.0	12.0	2.0	12	30	18	100	4	○
UM-4RL-D16.0R1.0	16.0	1.0	16	45	24	150	4	○
UM-4RL-D16.0R2.0	16.0	2.0	16	45	24	150	4	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

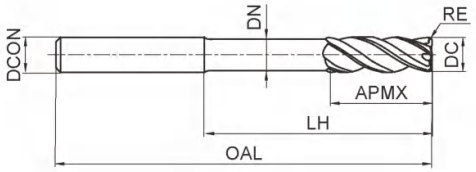
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	◎	◎		○	◎			○	○

Code key B294 Graphics category and identification B295 Cutting parameters B546-B547 Non-standard customization B652-B653

4-flute long neck and short cutting edge unequal pitch R end mills with straight shank

Radius shoulder | Profile | Radius corner slot

UM-4RFP



38°,41° | Coated AlTiN | DC DC≤12 0~-0.020 12<DC 0~-0.030

Type	Basic dimension(mm)							Number of teeth Z	Stock
	DC	RE	DCON	DN	APMX	LH	OAL		
UM-4RFP-D6.0R0.5	6.0	0.5	6	5.8	6	18	75	4	○
UM-4RFP-D6.0R1.0	6.0	1.0	6	5.8	6	18	75	4	○
UM-4RFP-D8.0R0.5	8.0	0.5	8	7.7	8	24	100	4	○
UM-4RFP-D8.0R1.0	8.0	1.0	8	7.7	8	24	100	4	○
UM-4RFP-D10.0R0.5	10.0	0.5	10	9.6	10	30	100	4	○
UM-4RFP-D10.0R1.0	10.0	1.0	10	9.6	10	30	100	4	○
UM-4RFP-D10.0R2.0	10.0	2.0	10	9.6	10	30	100	4	○
UM-4RFP-D12.0R0.5	12.0	0.5	12	11.5	12	36	100	4	○
UM-4RFP-D12.0R1.0	12.0	1.0	12	11.5	12	36	100	4	○
UM-4RFP-D12.0R2.0	12.0	2.0	12	11.5	12	36	100	4	○
UM-4RFP-D16.0R1.0	16.0	1.0	16	15.5	16	40	150	4	○
UM-4RFP-D16.0R2.0	16.0	2.0	16	15.5	16	40	150	4	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	◎	◎		○	◎			○	○

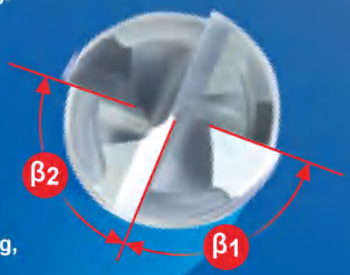
Code key B294 | Graphics category and identification B295 | Cutting parameters B548 | Non-standard customization B652-B653

PMX series

High-performance universal end mills

Stable and high anti-vibration machining

Brand new U shape flutes design, taking the tool rigidity account with chip flowing performance, new flutes have good dynamic balance, and more stable for high speed high-efficiency machining.

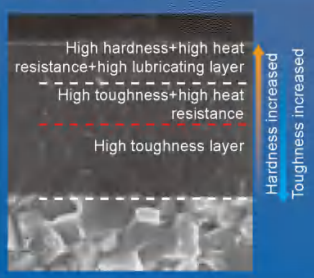


Unequal teeth pitch and unequal helical structure effectively restrain the vibration when processing, improve cutting stability and effectively avoid tools abnormal chipping and lose valid.

Accuracy class improvement

Grinding process overall optimized, accuracy grades improve greatly.

	Flute diameter		Radiu		Ballnose		Shank diameter
Tolerance (mm)	D≤3	0~-0.012	R<0.5	±0.005	SR≤3	±0.005	h5
	3<D≤12	0~-0.015	R≥0.5	±0.008	SR>3	±0.008	
	D>12	0~-0.02					



New coating grades

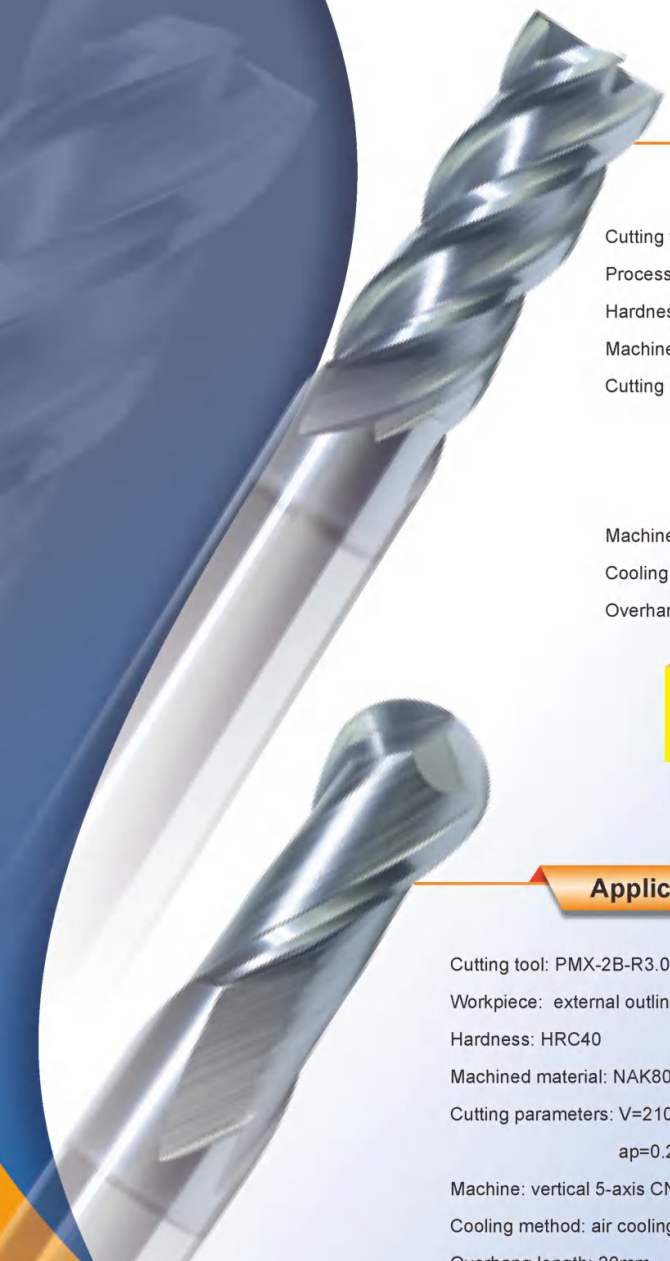
New "AlCrX-based" gradient coating to optimize stress distribution and improve impact resistance of the coating.

Nano-multilayer structure coating to restrain crack propagation effectively in the as-processed state.

With 40Gpa high hardness surface layer, the wear resistance of coating is excellent, and significantly improves tool service life.

Application range

It is widely applied in high-speed and high-efficiency side milling, slot milling and profiling of carbon steel, alloy steel, die steel, etc., materials in the mold, automobile industries under dry cutting, water cooling, MQL cooling conditions.



Application case 1

Cutting tool: PMX-4E-D10.0

Processing: side milling

Hardness: HRC53~56

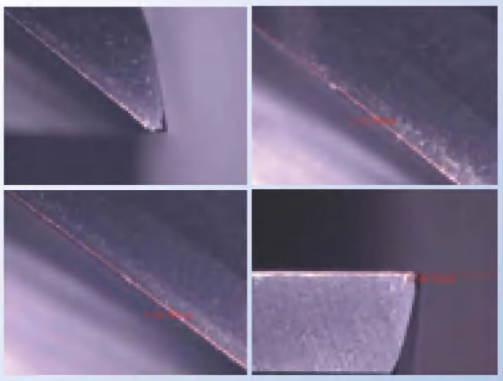
Machined material: SKD61

Cutting parameters: V=150m/min,
fr=0.2mm/r,
ap=10mm,
ae=0.5mm

Machine: vertical 5-axis CNC

Cooling method: emulsion coolant

Overhang length: 30mm



Test result: after machining 86m, flank face of ZCC·CT tool only normal wear 0.024mm, and it was available to continue cut.

Application case 2

Cutting tool: PMX-2B-R3.0

Workpiece: external outline of support arm

Hardness: HRC40

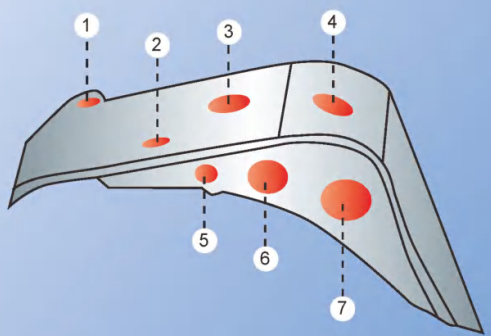
Machined material: NAK80

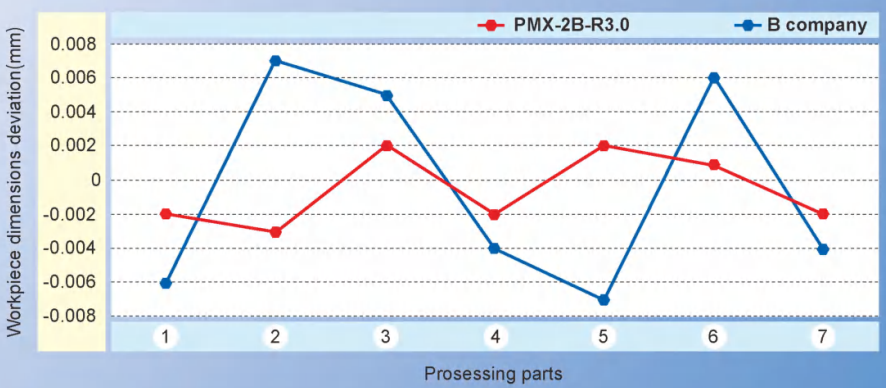
Cutting parameters: V=210m/min, fr=0.25mm/r,
ap=0.2mm, ae=0.3mm

Machine: vertical 5-axis CNC

Cooling method: air cooling

Overhang length: 20mm



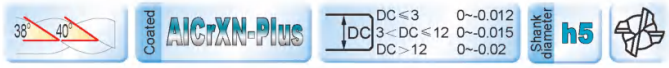


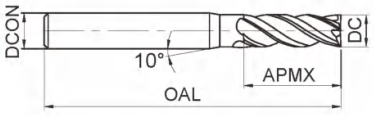
Result: After measuring the dimensions of seven parts of the workpiece, ZCC·CT tool PMX-2B-R3.0 product has higher accuracy and is stable within ±0.003mm.

4-flute flattened end mills with straight shank

PMX-4E

- It's suitable for high-efficiency machining on mould steel, pre-hardened steel and carbon steel.
- Unequal Teeth pitch and unequal helical angle design, has good performance on vibration resistance.





Picture 1

Picture 2

Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PMX-4E-D1.0F	1.0	3	3	50	4	Picture 1	●
PMX-4E-D1.5F	1.5	3	4	50	4	Picture 1	●
PMX-4E-D2.0F	2.0	3	6	50	4	Picture 1	●
PMX-4E-D2.5F	2.5	3	8	50	4	Picture 1	●
PMX-4E-D3.0F	3.0	3	8	50	4	Picture 2	●
PMX-4E-D1.0S	1.0	4	3	50	4	Picture 1	●
PMX-4E-D1.5S	1.5	4	4	50	4	Picture 1	●
PMX-4E-D2.0S	2.0	4	6	50	4	Picture 1	●
PMX-4E-D2.5S	2.5	4	8	50	4	Picture 1	●
PMX-4E-D3.0S	3.0	4	8	50	4	Picture 1	●
PMX-4E-D3.5S	3.5	4	10	50	4	Picture 1	●
PMX-4E-D4.0S	4.0	4	11	50	4	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~65HRC						
◎	◎	◎	◎	◎	○		◎				

Code key B294
Graphics category and identification B295
Cutting parameters B549
Non-standard customization B652-B653

4-flute flattened end mills with straight shank

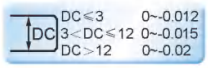

Side face

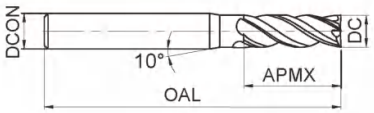

Step shoulder


Straight slot

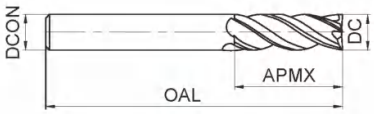
PMX-4E

- It's suitable for high-efficiency machining on mould steel, pre-hardened steel and carbon steel.
- Unequal Teeth pitch and unequal helical angle design, has good performance on vibration resistance.





Picture 1



Picture 2

Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PMX-4E-D1.0	1.0	6	3	50	4	Picture 1	●
PMX-4E-D1.5	1.5	6	4	50	4	Picture 1	●
PMX-4E-D2.0	2.0	6	6	50	4	Picture 1	●
PMX-4E-D2.5	2.5	6	8	50	4	Picture 1	●
PMX-4E-D3.0	3.0	6	8	50	4	Picture 1	●
PMX-4E-D3.5	3.5	6	10	50	4	Picture 1	●
PMX-4E-D4.0	4.0	6	11	50	4	Picture 1	●
PMX-4E-D4.5	4.5	6	11	50	4	Picture 1	●
PMX-4E-D5.0	5.0	6	13	50	4	Picture 1	●
PMX-4E-D5.5	5.5	6	16	50	4	Picture 1	●
PMX-4E-D6.0	6.0	6	16	50	4	Picture 2	●
PMX-4E-D7.0	7.0	8	20	60	4	Picture 1	●
PMX-4E-D8.0	8.0	8	20	60	4	Picture 2	●
PMX-4E-D9.0	9.0	10	22	75	4	Picture 1	●
PMX-4E-D10.0	10.0	10	25	75	4	Picture 2	●
PMX-4E-D11.0	11.0	12	26	75	4	Picture 1	●
PMX-4E-D12.0	12.0	12	30	75	4	Picture 2	●
PMX-4E-D14.0	14.0	14	32	75	4	Picture 2	●
PMX-4E-D16.0	16.0	16	45	100	4	Picture 2	●
PMX-4E-D18.0	18.0	18	45	100	4	Picture 2	●
PMX-4E-D20.0	20.0	20	45	100	4	Picture 2	●

● Stock available ○ Make-to-order

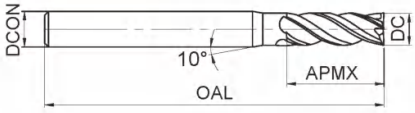
Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~65HRC						
◎	◎	◎	◎	◎	○		◎				

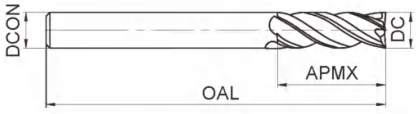
Code key B294
Graphics category and identification B295
Cutting parameters B549
Non-standard customization B652-B653

4-flute flattened end mills with long shank

PMX-4EBL/X

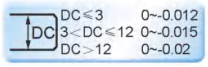


Picture 1



Picture 2

- PMX-4E long shank series.
- It's suitable for high-efficiency machining on mould steel, pre-hardened steel and carbon steel.
- Unequal Teeth pitch and unequal helical angle structure has good performance on vibration resistance.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PMX-4EBL-D3.0S	3.0	4	8	75	4	Picture 1	○
PMX-4EBL-D4.0S	4.0	4	11	75	4	Picture 2	○
PMX-4EBL-D3.0	3.0	6	8	75	4	Picture 1	○
PMX-4EBL-D4.0	4.0	6	11	75	4	Picture 1	○
PMX-4EBL-D5.0	5.0	6	13	75	4	Picture 1	○
PMX-4EBL-D6.0	6.0	6	16	75	4	Picture 2	○
PMX-4EBX-D6.0	6.0	6	16	100	4	Picture 2	○
PMX-4EBL-D8.0	8.0	8	20	75	4	Picture 2	○
PMX-4EBX-D8.0	8.0	8	20	100	4	Picture 2	○
PMX-4EBL-D10.0	10.0	10	25	100	4	Picture 2	○
PMX-4EBL-D12.0	12.0	12	30	100	4	Picture 2	○
PMX-4EBL-D16.0	16.0	16	45	150	4	Picture 2	○
PMX-4EBL-D20.0	20.0	20	45	150	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

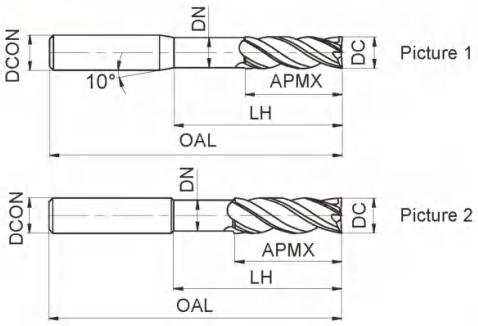
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~65HRC						
◎	◎	◎	◎	◎	○		◎				

Code key B294
Graphics category and identification B295
Cutting parameters B549
Non-standard customization B652-B653

4-flute flattened end mills with straight shank, long neck and short cutting edge

PMX-4EFP

- It's suitable for high-efficiency machining on mould steel, pre-hardened steel and carbon steel.
- Unequal Teeth pitch and unequal helical angle structure has good performance on vibration resistance.
- High rigidity short flute design, it's more suitable for high efficiency machining.



Type	Basic dimension(mm)						Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	LH	DN	OAL			
PMX-4EFP-D3.0S	3.0	4	4.5	15	2.8	75	4	Picture 1	○
PMX-4EFP-D4.0S	4.0	4	6	20	3.8	75	4	Picture 2	○
PMX-4EFP-D3.0	3.0	6	4.5	15	2.8	75	4	Picture 1	○
PMX-4EFP-D4.0	4.0	6	6	20	3.8	75	4	Picture 1	○
PMX-4EFP-D5.0	5.0	6	8	25	4.8	75	4	Picture 1	○
PMX-4EFP-D6.0	6.0	6	9	30	5.8	75	4	Picture 2	○
PMX-4EFP-D8.0	8.0	8	12	40	7.8	100	4	Picture 2	○
PMX-4EFP-D10.0	10.0	10	15	50	9.5	100	4	Picture 2	○
PMX-4EFP-D12.0	12.0	12	18	50	11.5	100	4	Picture 2	○
PMX-4EFP-D16.0	16.0	16	24	60	15.5	150	4	Picture 2	○
PMX-4EFP-D20.0	20.0	20	30	60	19.5	150	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~65HRC						
◎	◎	◎	◎	◎	○		◎				

Code key B294
Graphics category and identification B295
Cutting parameters B549
Non-standard customization B652-B653

4-flute R end mills with straight shank

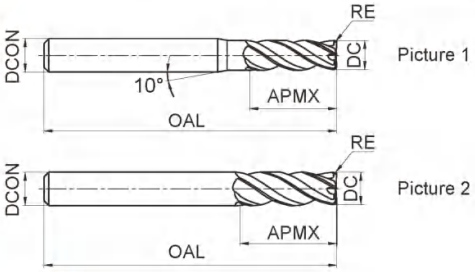

Radius shoulder

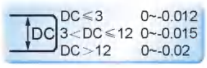

Profile

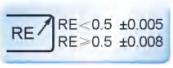

Radius corner slot

PMX-4R

- It's suitable for high-efficiency machining on mould steel, pre-hardened steel and carbon steel.
- Unequal Teeth pitch and unequal helical angle design, has good performance on vibration resistance.







Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
PMX-4R-D1.0R0.2S	1.0	0.2	4	3	50	4	Picture 1	●
PMX-4R-D1.5R0.2S	1.5	0.2	4	4	50	4	Picture 1	●
PMX-4R-D2.0R0.2S	2.0	0.2	4	6	50	4	Picture 1	●
PMX-4R-D2.0R0.5S	2.0	0.5	4	6	50	4	Picture 1	●
PMX-4R-D2.5R0.2S	2.5	0.2	4	8	50	4	Picture 1	●
PMX-4R-D2.5R0.5S	2.5	0.5	4	8	50	4	Picture 1	●
PMX-4R-D3.0R0.2S	3.0	0.2	4	8	50	4	Picture 1	●
PMX-4R-D3.0R0.3S	3.0	0.3	4	8	50	4	Picture 1	●
PMX-4R-D4.0R0.2S	4.0	0.2	4	11	50	4	Picture 2	●
PMX-4R-D4.0R0.3S	4.0	0.3	4	11	50	4	Picture 2	●
PMX-4R-D4.0R0.5S	4.0	0.5	4	11	50	4	Picture 2	●
PMX-4R-D1.0R0.2	1.0	0.2	6	3	50	4	Picture 1	●
PMX-4R-D1.5R0.2	1.5	0.2	6	4	50	4	Picture 1	●
PMX-4R-D2.0R0.2	2.0	0.2	6	6	50	4	Picture 1	●
PMX-4R-D2.0R0.5	2.0	0.5	6	6	50	4	Picture 1	●
PMX-4R-D2.5R0.2	2.5	0.2	6	8	50	4	Picture 1	●
PMX-4R-D2.5R0.5	2.5	0.5	6	8	50	4	Picture 1	●
PMX-4R-D3.0R0.2	3.0	0.2	6	8	50	4	Picture 1	●
PMX-4R-D3.0R0.3	3.0	0.3	6	8	50	4	Picture 1	●
PMX-4R-D4.0R0.2	4.0	0.2	6	11	50	4	Picture 1	●
PMX-4R-D4.0R0.3	4.0	0.3	6	11	50	4	Picture 1	●
PMX-4R-D4.0R0.5	4.0	0.5	6	11	50	4	Picture 1	●
PMX-4R-D5.0R0.3	5.0	0.3	6	13	50	4	Picture 1	●
PMX-4R-D5.0R0.5	5.0	0.5	6	13	50	4	Picture 1	●
PMX-4R-D5.0R1.0	5.0	1.0	6	13	50	4	Picture 1	●

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~65HRC						
◎	◎	◎	◎	◎	○		◎				

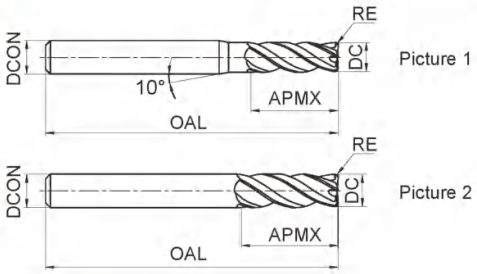
Code key B294
Graphics category and identification B295
Cutting parameters B550
Non-standard customization B652-B653

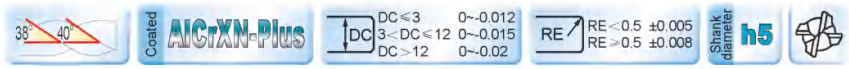
4-flute R end mills with straight shank

Radius shoulder | Profile | Radius corner slot

PMX-4R

- It's suitable for high-efficiency machining on mould steel, pre-hardened steel and carbon steel.
- Unequal teeth pitch and unequal helical angle design, has good performance on vibration resistance.





Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
PMX-4R-D5.0R0.2	5.0	0.2	6	13	50	4	Picture 1	●
PMX-4R-D6.0R0.2	6.0	0.2	6	16	50	4	Picture 2	●
PMX-4R-D6.0R0.3	6.0	0.3	6	16	50	4	Picture 2	●
PMX-4R-D6.0R0.5	6.0	0.5	6	16	50	4	Picture 2	●
PMX-4R-D6.0R1.0	6.0	1.0	6	16	50	4	Picture 2	●
PMX-4R-D8.0R0.2	8.0	0.2	8	20	60	4	Picture 2	●
PMX-4R-D8.0R0.3	8.0	0.3	8	20	60	4	Picture 2	●
PMX-4R-D8.0R0.5	8.0	0.5	8	20	60	4	Picture 2	●
PMX-4R-D8.0R1.0	8.0	1.0	8	20	60	4	Picture 2	●
PMX-4R-D10.0R0.2	10.0	0.2	10	25	75	4	Picture 2	●
PMX-4R-D10.0R0.3	10.0	0.3	10	25	75	4	Picture 2	●
PMX-4R-D10.0R0.5	10.0	0.5	10	25	75	4	Picture 2	●
PMX-4R-D10.0R1.0	10.0	1.0	10	25	75	4	Picture 2	●
PMX-4R-D10.0R1.5	10.0	1.5	10	25	75	4	Picture 2	●
PMX-4R-D10.0R2.0	10.0	2.0	10	25	75	4	Picture 2	●
PMX-4R-D12.0R0.3	12.0	0.3	12	30	75	4	Picture 2	●
PMX-4R-D12.0R0.5	12.0	0.5	12	30	75	4	Picture 2	●
PMX-4R-D12.0R1.0	12.0	1.0	12	30	75	4	Picture 2	●
PMX-4R-D12.0R1.5	12.0	1.5	12	30	75	4	Picture 2	●
PMX-4R-D12.0R2.0	12.0	2.0	12	30	75	4	Picture 2	●
PMX-4R-D12.0R3.0	12.0	3.0	12	30	75	4	Picture 2	●
PMX-4R-D16.0R0.5	16.0	0.5	16	45	100	4	Picture 2	●
PMX-4R-D16.0R1.0	16.0	1.0	16	45	100	4	Picture 2	●
PMX-4R-D16.0R2.0	16.0	2.0	16	45	100	4	Picture 2	●
PMX-4R-D16.0R3.0	16.0	3.0	16	45	100	4	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

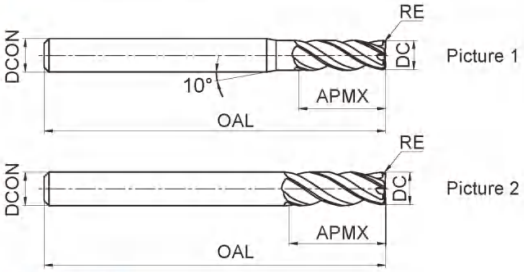
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~65HRC						
◎	◎	◎	◎	◎	○		◎				

Code key B294 | Graphics category and identification B295 | Cutting parameters B550 | Non-standard customization B652-B653

4-flute R end mills with long shank

Radius shoulder | Profile | Radius corner slot

PMX-4RBL/X



- PMX-4R series with long shank.

38 40 | Coated AlCrXN-Plus | DC DC≤3 0~-0.012 3<DC≤12 0~-0.015 DC>12 0~-0.02 | RE RE<0.5 ±0.005 RE>0.5 ±0.008 | Shank diameter h5

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
PMX-4RBL-D3.0R0.2S	3.0	0.2	4	8	75	4	Picture 1	○
PMX-4RBL-D3.0R0.3S	3.0	0.3	4	8	75	4	Picture 1	○
PMX-4RBL-D4.0R0.2S	4.0	0.2	4	11	75	4	Picture 2	○
PMX-4RBL-D4.0R0.3S	4.0	0.3	4	11	75	4	Picture 2	○
PMX-4RBL-D4.0R0.5S	4.0	0.5	4	11	75	4	Picture 2	○
PMX-4RBL-D3.0R0.2	3.0	0.2	6	8	75	4	Picture 1	○
PMX-4RBL-D3.0R0.3	3.0	0.3	6	8	75	4	Picture 1	○
PMX-4RBL-D4.0R0.2	4.0	0.2	6	11	75	4	Picture 1	○
PMX-4RBL-D4.0R0.3	4.0	0.3	6	11	75	4	Picture 1	○
PMX-4RBL-D4.0R0.5	4.0	0.5	6	11	75	4	Picture 1	○
PMX-4RBL-D6.0R0.2	6.0	0.2	6	16	75	4	Picture 2	○
PMX-4RBL-D6.0R0.3	6.0	0.3	6	16	75	4	Picture 2	○
PMX-4RBL-D6.0R0.5	6.0	0.5	6	16	75	4	Picture 2	○
PMX-4RBL-D6.0R1.0	6.0	1.0	6	16	75	4	Picture 2	○
PMX-4RBX-D6.0R0.2	6.0	0.2	6	16	100	4	Picture 2	○
PMX-4RBX-D6.0R0.3	6.0	0.3	6	16	100	4	Picture 2	○
PMX-4RBX-D6.0R0.5	6.0	0.5	6	16	100	4	Picture 2	○
PMX-4RBX-D6.0R1.0	6.0	1.0	6	16	100	4	Picture 2	○
PMX-4RBL-D8.0R0.2	8.0	0.2	8	20	75	4	Picture 2	○
PMX-4RBL-D8.0R0.3	8.0	0.3	8	20	75	4	Picture 2	○
PMX-4RBL-D8.0R0.5	8.0	0.5	8	20	75	4	Picture 2	○
PMX-4RBL-D8.0R1.0	8.0	1.0	8	20	75	4	Picture 2	○
PMX-4RBX-D8.0R0.2	8.0	0.2	8	20	100	4	Picture 2	○
PMX-4RBX-D8.0R0.3	8.0	0.3	8	20	100	4	Picture 2	○
PMX-4RBX-D8.0R0.5	8.0	0.5	8	20	100	4	Picture 2	○
PMX-4RBX-D8.0R1.0	8.0	1.0	8	20	100	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~65HRC						
◎	◎	◎	◎	◎	○		◎				

Code key B294 | Graphics category and identification B295 | Cutting parameters B550 | Non-standard customization B652-B653

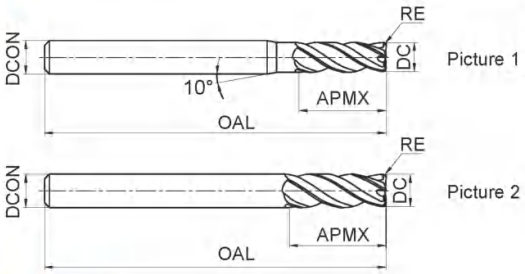
4-flute R end mills with long shank


Radius shoulder


Profile


Radius corner slot

PMX-4RBL/X



- PMX-4R series with long shank.

38° 40° | Coated AlCrXN-Plus | DC: DC≤3 0~-0.012; 3<DC≤12 0~-0.015; DC>12 0~-0.02 | RE: RE<0.5 ±0.005; RE>0.5 ±0.008 | Shank diameter h5

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
PMX-4RBL-D10.0R0.2	10.0	0.2	10	25	100	4	Picture 2	○
PMX-4RBL-D10.0R0.3	10.0	0.3	10	25	100	4	Picture 2	○
PMX-4RBL-D10.0R0.5	10.0	0.5	10	25	100	4	Picture 2	○
PMX-4RBL-D10.0R1.0	10.0	1.0	10	25	100	4	Picture 2	○
PMX-4RBL-D10.0R1.5	10.0	1.5	10	25	100	4	Picture 2	○
PMX-4RBL-D10.0R2.0	10.0	2.0	10	25	100	4	Picture 2	○
PMX-4RBX-D10.0R0.2	10.0	0.2	10	25	150	4	Picture 2	○
PMX-4RBX-D10.0R0.3	10.0	0.3	10	25	150	4	Picture 2	○
PMX-4RBX-D10.0R0.5	10.0	0.5	10	25	150	4	Picture 2	○
PMX-4RBX-D10.0R1.0	10.0	1.0	10	25	150	4	Picture 2	○
PMX-4RBX-D10.0R1.5	10.0	1.5	10	25	150	4	Picture 2	○
PMX-4RBX-D10.0R2.0	10.0	2.0	10	25	150	4	Picture 2	○
PMX-4RBL-D12.0R0.3	12.0	0.3	12	30	100	4	Picture 2	○
PMX-4RBL-D12.0R0.5	12.0	0.5	12	30	100	4	Picture 2	○
PMX-4RBL-D12.0R1.0	12.0	1.0	12	30	100	4	Picture 2	○
PMX-4RBL-D12.0R1.5	12.0	1.5	12	30	100	4	Picture 2	○
PMX-4RBL-D12.0R2.0	12.0	2.0	12	30	100	4	Picture 2	○
PMX-4RBL-D12.0R3.0	12.0	3.0	12	30	100	4	Picture 2	○
PMX-4RBX-D12.0R0.3	12.0	0.3	12	30	150	4	Picture 2	○
PMX-4RBX-D12.0R0.5	12.0	0.5	12	30	150	4	Picture 2	○
PMX-4RBX-D12.0R1.0	12.0	1.0	12	30	150	4	Picture 2	○
PMX-4RBX-D12.0R1.5	12.0	1.5	12	30	150	4	Picture 2	○
PMX-4RBX-D12.0R2.0	12.0	2.0	12	30	150	4	Picture 2	○
PMX-4RBX-D12.0R3.0	12.0	3.0	12	30	150	4	Picture 2	○
PMX-4RBL-D16.0R0.5	16.0	0.5	16	45	150	4	Picture 2	○
PMX-4RBL-D16.0R1.0	16.0	1.0	16	45	150	4	Picture 2	○
PMX-4RBL-D16.0R2.0	16.0	2.0	16	45	150	4	Picture 2	○
PMX-4RBL-D16.0R3.0	16.0	3.0	16	45	150	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~65HRC						
◎	◎	◎	◎	◎	○		◎				

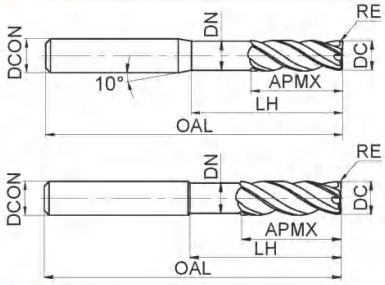
Code key B294
Graphics category and identification B295
Cutting parameters B550
Non-standard customization B652-B653

4-flute R end mills with straight shank, long neck and short cutting edge

Radius shoulder Profile Radius corner slot

PMX-4RFP

- It's suitable for high-efficiency machining on mould steel, pre-hardened steel and carbon steel.
- Unequal Teeth pitch and unequal helical angle structure has good performance on vibration resistance.
- High rigidity short flute design, it's more suitable for high efficiency machining.



Picture 1 Picture 2

38° 40° Coated AlCrXN-Plus DC DC≤3 0~-0.012 3<DC≤12 0~-0.015 DC>12 0~-0.02 RE RE<0.5 ±0.005 RE≥0.5 ±0.008 Shank diameter h5

Type	Basic dimension(mm)							Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	LH	DN	OAL			
PMX-4RFP-D3.0R0.2S	3.0	0.2	4	3	9	2.8	75	4	Picture 1	○
PMX-4RFP-D3.0R0.3S	3.0	0.3	4	3	9	2.8	75	4	Picture 1	○
PMX-4RFP-D4.0R0.2S	4.0	0.2	4	4	12	3.8	75	4	Picture 2	○
PMX-4RFP-D4.0R0.3S	4.0	0.3	4	4	12	3.8	75	4	Picture 2	○
PMX-4RFP-D4.0R0.5S	4.0	0.5	4	4	12	3.8	75	4	Picture 2	○
PMX-4RFP-D3.0R0.2	3.0	0.2	6	3	9	2.8	75	4	Picture 1	○
PMX-4RFP-D3.0R0.3	3.0	0.3	6	3	9	2.8	75	4	Picture 1	○
PMX-4RFP-D4.0R0.2	4.0	0.2	6	4	12	3.8	75	4	Picture 1	○
PMX-4RFP-D4.0R0.3	4.0	0.3	6	4	12	3.8	75	4	Picture 1	○
PMX-4RFP-D4.0R0.5	4.0	0.5	6	4	12	3.8	75	4	Picture 1	○
PMX-4RFP-D6.0R0.3	6.0	0.3	6	6	18	5.8	75	4	Picture 2	○
PMX-4RFP-D6.0R0.5	6.0	0.5	6	6	18	5.8	75	4	Picture 2	○
PMX-4RFP-D6.0R1.0	6.0	1.0	6	6	18	5.8	75	4	Picture 2	○
PMX-4RFP-D8.0R0.3	8.0	0.3	8	8	24	7.8	75	4	Picture 2	○
PMX-4RFP-D8.0R0.5	8.0	0.5	8	8	24	7.8	75	4	Picture 2	○
PMX-4RFP-D8.0R1.0	8.0	1.0	8	8	24	7.8	75	4	Picture 2	○
PMX-4RFP-D10.0R0.3	10.0	0.3	10	10	30	9.5	100	4	Picture 2	○
PMX-4RFP-D10.0R0.5	10.0	0.5	10	10	30	9.5	100	4	Picture 2	○
PMX-4RFP-D10.0R1.0	10.0	1.0	10	10	30	9.5	100	4	Picture 2	○
PMX-4RFP-D10.0R1.5	10.0	1.5	10	10	30	9.5	100	4	Picture 2	○
PMX-4RFP-D10.0R2.0	10.0	2.0	10	10	30	9.5	100	4	Picture 2	○
PMX-4RFP-D12.0R0.3	12.0	0.3	12	12	36	11.5	100	4	Picture 2	○
PMX-4RFP-D12.0R0.5	12.0	0.5	12	12	36	11.5	100	4	Picture 2	○
PMX-4RFP-D12.0R1.0	12.0	1.0	12	12	36	11.5	100	4	Picture 2	○
PMX-4RFP-D12.0R1.5	12.0	1.5	12	12	36	11.5	100	4	Picture 2	○
PMX-4RFP-D12.0R2.0	12.0	2.0	12	12	36	11.5	100	4	Picture 2	○
PMX-4RFP-D16.0R1.0	16.0	1.0	16	16	40	15.5	150	4	Picture 2	○
PMX-4RFP-D16.0R2.0	16.0	2.0	16	16	40	15.5	150	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

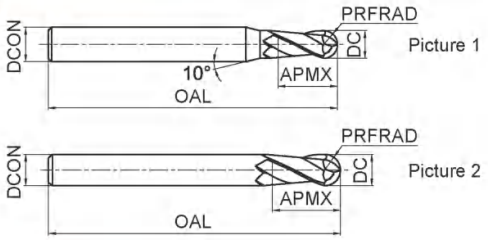
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~65HRC						
◎	◎	◎	◎	◎	○		◎				

Code key B294 Graphics category and identification B295 Cutting parameters B550 Non-standard customization B652-B653

2-flute ball nose end mills with straight shank

Profile | Cavity | Ball nose slot

PMX-2B



- It's suitable for profiling on mould steel, pre-hardened steel and carbon steel.
- Wide application.

30° | Coated AlCrXN-Plus | DC: DC≤3 0~-0.012; 3<DC≤12 0~-0.015; DC>12 0~-0.02 | PRFRAD: PRFRAD≤3 ±0.005; PRFRAD>3 ±0.008 | Shank diameter h5

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	PRFRAD	DCON	APMX	OAL			
PMX-2B-R1.0F	2.0	1.0	3	4	50	2	Picture 1	●
PMX-2B-R1.25F	2.5	1.25	3	5	50	2	Picture 1	●
PMX-2B-R1.5F	3.0	1.5	3	6	50	2	Picture 2	●
PMX-2B-R0.5S	1.0	0.5	4	2	50	2	Picture 1	●
PMX-2B-R0.75S	1.5	0.75	4	3	50	2	Picture 1	●
PMX-2B-R1.0S	2.0	1.0	4	4	50	2	Picture 1	●
PMX-2B-R1.25S	2.5	1.25	4	5	50	2	Picture 1	●
PMX-2B-R1.5S	3.0	1.5	4	6	50	2	Picture 1	●
PMX-2B-R1.75S	3.5	1.75	4	8	50	2	Picture 1	●
PMX-2B-R2.0S	4.0	2.0	4	8	50	2	Picture 2	●
PMX-2B-R0.5	1.0	0.5	6	2	50	2	Picture 1	●
PMX-2B-R0.75	1.5	0.75	6	3	50	2	Picture 1	●
PMX-2B-R1.0	2.0	1.0	6	4	50	2	Picture 1	●
PMX-2B-R1.25	2.5	1.25	6	5	50	2	Picture 1	●
PMX-2B-R1.5	3.0	1.5	6	6	50	2	Picture 1	●
PMX-2B-R1.75	3.5	1.75	6	8	50	2	Picture 1	●
PMX-2B-R2.0	4.0	2.0	6	8	50	2	Picture 1	●
PMX-2B-R2.5	5.0	2.5	6	10	50	2	Picture 1	●
PMX-2B-R2.75	5.5	2.75	6	12	50	2	Picture 1	●
PMX-2B-R3.0	6.0	3.0	6	12	50	2	Picture 2	●
PMX-2B-R3.5	7.0	3.5	8	14	60	2	Picture 1	●
PMX-2B-R4.0	8.0	4.0	8	16	60	2	Picture 2	●
PMX-2B-R4.5	9.0	4.5	10	18	75	2	Picture 1	●
PMX-2B-R5.0	10.0	5.0	10	20	75	2	Picture 2	●
PMX-2B-R6.0	12.0	6.0	12	24	75	2	Picture 2	●
PMX-2B-R7.0	14.0	7.0	14	28	75	2	Picture 2	●
PMX-2B-R8.0	16.0	8.0	16	32	100	2	Picture 2	●
PMX-2B-R10.0	20.0	10.0	20	40	100	2	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~65HRC						
◎	◎	◎	◎	◎	○		◎				

Code key B294 | Graphics category and identification B295 | Cutting parameters B551 | Non-standard customization B652-B653

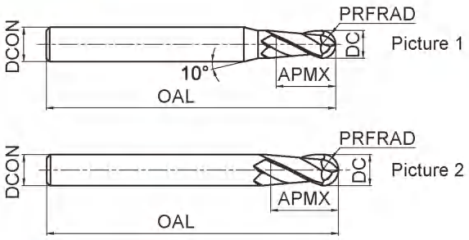
2-flute ball nose end mills with long shank


Profile

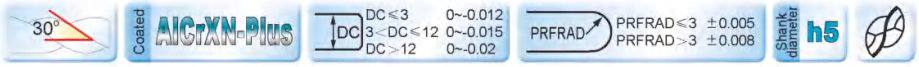

Cavity


Ball nose slot

PMX-2BL/M/X



● PMX-2B series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	PRFRAD	DCON	APMX	OAL			
PMX-2BL-R1.0S	2.0	1.0	4	4	75	2	Picture 1	○
PMX-2BL-R1.25S	2.5	1.25	4	5	75	2	Picture 1	○
PMX-2BL-R1.5S	3.0	1.5	4	6	75	2	Picture 1	○
PMX-2BL-R1.75S	3.5	1.75	4	8	75	2	Picture 1	○
PMX-2BL-R2.0S	4.0	2.0	4	8	75	2	Picture 2	○
PMX-2BL-R1.0	2.0	1.0	6	4	75	2	Picture 1	○
PMX-2BL-R1.25	2.5	1.25	6	5	75	2	Picture 1	○
PMX-2BL-R1.5	3.0	1.5	6	6	75	2	Picture 1	○
PMX-2BL-R1.75	3.5	1.75	6	8	75	2	Picture 1	○
PMX-2BL-R2.0	4.0	2.0	6	8	75	2	Picture 2	○
PMX-2BL-R2.5	5.0	2.5	6	10	75	2	Picture 1	○
PMX-2BL-R2.75	5.5	2.75	6	12	75	2	Picture 1	○
PMX-2BL-R3.0	6.0	3.0	6	12	75	2	Picture 2	○
PMX-2BX-R3.0	6.0	3.0	6	12	100	2	Picture 2	○
PMX-2BL-R3.5	7.0	3.5	8	14	75	2	Picture 1	○
PMX-2BM-R4.0	8.0	4.0	8	16	75	2	Picture 2	○
PMX-2BL-R4.0	8.0	4.0	8	16	100	2	Picture 2	○
PMX-2BL-R4.5	9.0	4.5	10	20	100	2	Picture 1	○
PMX-2BL-R5.0	10.0	5.0	10	20	100	2	Picture 2	○
PMX-2BX-R5.0	10.0	5.0	10	20	150	2	Picture 2	○
PMX-2BL-R6.0	12.0	6	12	24	100	2	Picture 2	○
PMX-2BX-R6.0	12.0	6.0	12	24	150	2	Picture 2	○
PMX-2BL-R7.0	14.0	7.0	14	28	100	2	Picture 2	○
PMX-2BL-R8.0	16.0	8.0	16	32	150	2	Picture 2	○
PMX-2BL-R10.0	20.0	10.0	20	40	150	2	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

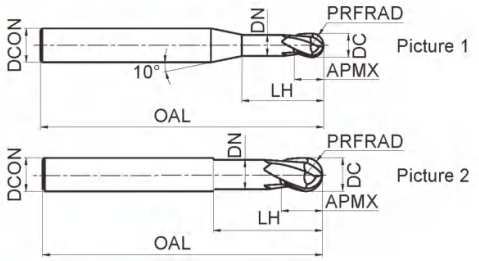
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~65HRC						
◎	◎	◎	◎	◎	○		◎				

Code key B294
Graphics category and identification B295
Cutting parameters B551
Non-standard customization B652-B653

2-flute ball nose end mills with long neck and short cutting edge

Profile Cavity Ball nose slot

PMX-2BFP



- High rigidity short flute design, it's suitable for heavy machining.

30° Coated AlCrXN-Plus DC DC≤3 0~-0.012 3<DC≤12 0~-0.015 DC>12 0~-0.02 PRFRAD PRFRAD≤3 ±0.005 PRFRAD>3 ±0.008 Shank diameter h5

Type	Basic dimension(mm)							Number of teeth Z	Geometry	Stock
	DC	PRFRAD	DCON	APMX	LH	DN	OAL			
PMX-2BFP-R0.5	1.0	0.5	6	1	2.5	0.95	75	2	Picture 1	○
PMX-2BFP-R0.75	1.5	0.75	6	1.5	3	1.45	75	2	Picture 1	○
PMX-2BFP-R1.0	2.0	1.0	6	2	4	1.95	75	2	Picture 1	○
PMX-2BFP-R1.5	3.0	1.5	6	3	6	2.85	75	2	Picture 1	○
PMX-2BFP-R2.0	4.0	2.0	6	4	8	3.85	75	2	Picture 1	○
PMX-2BFP-R2.5	5.0	2.5	6	5	10	4.85	75	2	Picture 1	○
PMX-2BFP-R3.0	6.0	3.0	6	6	12	5.8	75	2	Picture 2	○
PMX-2BFP-R4.0	8.0	4.0	8	8	16	7.8	100	2	Picture 2	○
PMX-2BFP-R5.0	10.0	5.0	10	10	20	9.6	100	2	Picture 2	○
PMX-2BFP-R6.0	12.0	6.0	12	12	24	11.5	100	2	Picture 2	○
PMX-2BFP-R8.0	16.0	8.0	16	16	32	15.5	150	2	Picture 2	○
PMX-2BFP-R10.0	20.0	10.0	20	20	40	19.5	150	2	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~65HRC						
◎	◎	◎	◎	◎	○		◎				

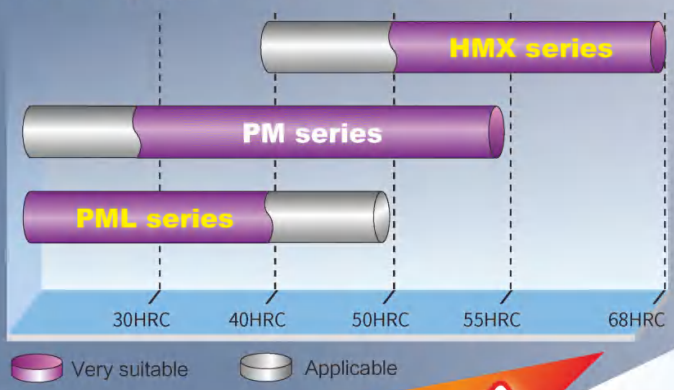
Code key B294 Graphics category and identification B295 Cutting parameters B551 Non-standard customization B652-B653

High performance universal machining

PML series

Applicable of high efficiency machining in a variety of materials under HRC50, while significantly promoting machinability of soft materials such as carbon steel, low carbon alloy steel under HRC40!

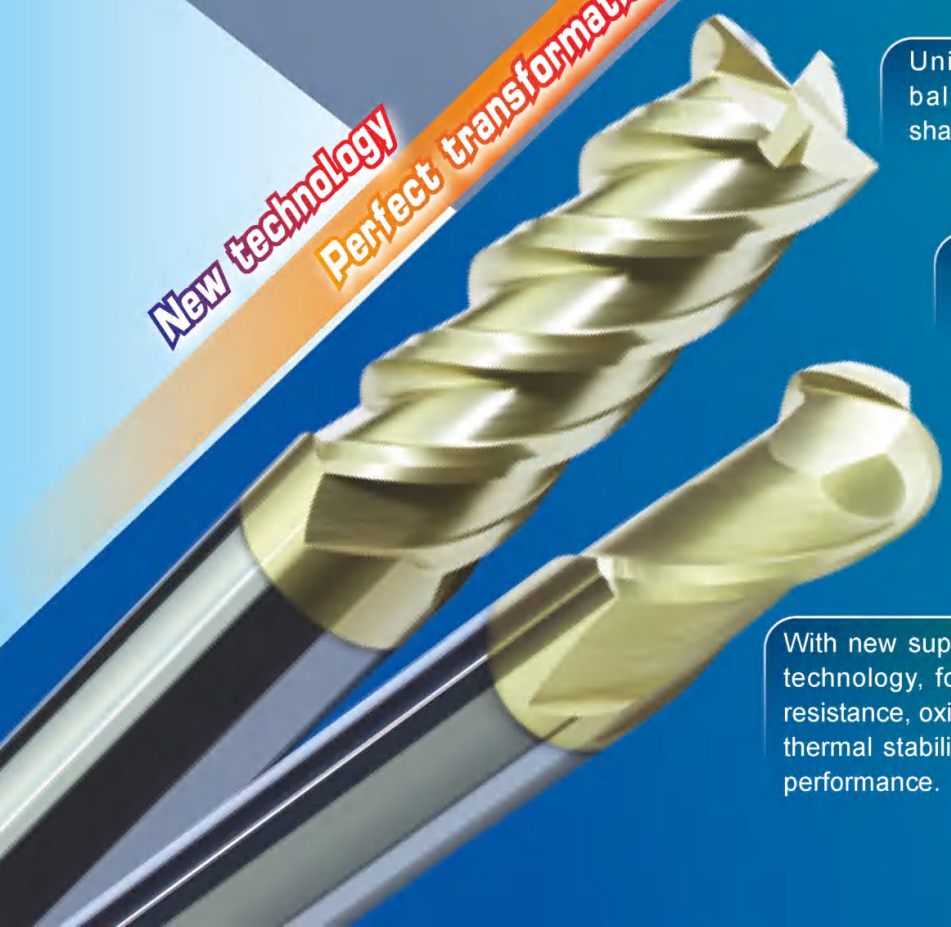
PML, **PM**, **HMX** high performance solid carbide end mills series
Recommendation for steel materials machining application



Application range:

Applicable for high-efficiency machining in a variety of materials under HRC50, e.g., non-ferrous alloy, steel, pre-hardened steel, stainless steel, especially suitable for soft materials such as carbon steel, low carbon alloy steel under HRC40. With excellent cutting performance in both dry and wet cutting conditions.

New technology
Perfect transformation

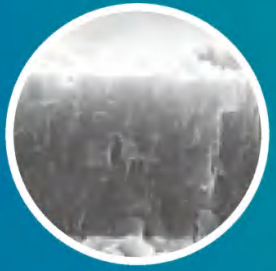


Unique cutting edge design, balancing edge strength and sharpness, with low cutting force.

Light yellow coating allows for better wear observation.

Advanced coating after-treatment technology, for closer combination with substrate, lower friction and superior surface quality.

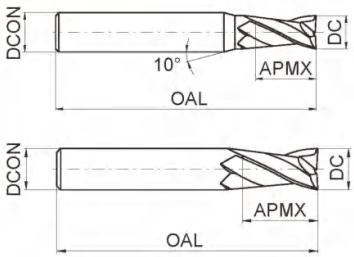
With new superlattice coatings technology, for excellent wear resistance, oxidation resistance, thermal stability and lubrication performance.



2-flute flattened end mills with straight shank

PML-2E

- Very suitable for slot milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PML-2E-D1.0S	1.0	4	3	50	2	Picture 1	●
PML-2E-D1.0	1.0	6	3	50	2	Picture 1	●
PML-2E-D1.5S	1.5	4	4	50	2	Picture 1	●
PML-2E-D1.5	1.5	6	4	50	2	Picture 1	●
PML-2E-D2.0S	2.0	4	6	50	2	Picture 1	●
PML-2E-D2.0	2.0	6	6	50	2	Picture 1	●
PML-2E-D2.5S	2.5	4	8	50	2	Picture 1	●
PML-2E-D2.5	2.5	6	8	50	2	Picture 1	●
PML-2E-D3.0S	3.0	4	8	50	2	Picture 1	●
PML-2E-D3.0	3.0	6	8	50	2	Picture 1	●
PML-2E-D3.5	3.5	6	10	50	2	Picture 1	●
PML-2E-D4.0S	4.0	4	11	50	2	Picture 2	●
PML-2E-D4.0	4.0	6	11	50	2	Picture 1	●
PML-2E-D4.5	4.5	6	11	50	2	Picture 1	●
PML-2E-D5.0	5.0	6	13	50	2	Picture 1	●
PML-2E-D5.5	5.5	6	16	50	2	Picture 1	●
PML-2E-D6.0	6.0	6	16	50	2	Picture 2	●
PML-2E-D7.0	7.0	8	20	60	2	Picture 1	●
PML-2E-D8.0	8.0	8	20	60	2	Picture 2	●
PML-2E-D9.0	9.0	10	22	75	2	Picture 1	●
PML-2E-D10.0	10.0	10	25	75	2	Picture 2	●
PML-2E-D11.0	11.0	12	26	75	2	Picture 1	●
PML-2E-D12.0	12.0	12	30	75	2	Picture 2	●
PML-2E-D14.0	14.0	14	32	75	2	Picture 2	●
PML-2E-D16.0	16.0	16	45	100	2	Picture 2	●
PML-2E-D18.0	18.0	18	45	100	2	Picture 2	●
PML-2E-D20.0	20.0	20	45	100	2	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

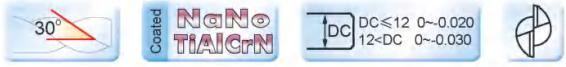
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

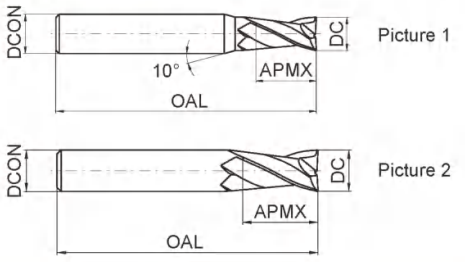
Code key B294
Graphics category and identification B295
Cutting parameters B552
Non-standard customization B652-B653

2-flute flattened end mills with straight shank

PML-2F

- Very suitable for slot milling.
- Wide application.





Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PML-2F-D1.0S	1.0	4	3	50	2	Picture 1	○
PML-2F-D1.0	1.0	6	3	50	2	Picture 1	○
PML-2F-D1.5S	1.5	4	4	50	2	Picture 1	○
PML-2F-D1.5	1.5	6	4	50	2	Picture 1	○
PML-2F-D2.0S	2.0	4	6	50	2	Picture 1	○
PML-2F-D2.0	2.0	6	6	50	2	Picture 1	○
PML-2F-D2.5S	2.5	4	8	50	2	Picture 1	○
PML-2F-D2.5	2.5	6	8	50	2	Picture 1	○
PML-2F-D3.0S	3.0	4	8	50	2	Picture 1	○
PML-2F-D3.0	3.0	6	8	50	2	Picture 1	○
PML-2F-D3.5	3.5	6	10	50	2	Picture 1	○
PML-2F-D4.0S	4.0	4	11	50	2	Picture 2	○
PML-2F-D4.0	4.0	6	11	50	2	Picture 1	○
PML-2F-D4.5	4.5	6	11	50	2	Picture 1	○
PML-2F-D5.0	5.0	6	13	50	2	Picture 1	○
PML-2F-D5.5	5.5	6	16	50	2	Picture 1	○
PML-2F-D6.0	6.0	6	16	50	2	Picture 2	○
PML-2F-D7.0	7.0	8	20	60	2	Picture 1	○
PML-2F-D8.0	8.0	8	20	60	2	Picture 2	○
PML-2F-D9.0	9.0	10	22	75	2	Picture 1	○
PML-2F-D10.0	10.0	10	25	75	2	Picture 2	○
PML-2F-D11.0	11.0	12	26	75	2	Picture 1	○
PML-2F-D12.0	12.0	12	30	75	2	Picture 2	○
PML-2F-D14.0	14.0	14	32	75	2	Picture 2	○
PML-2F-D16.0	16.0	16	45	100	2	Picture 2	○
PML-2F-D18.0	18.0	18	45	100	2	Picture 2	○
PML-2F-D20.0	20.0	20	45	100	2	Picture 2	○

● Stock available ○ Make-to-order

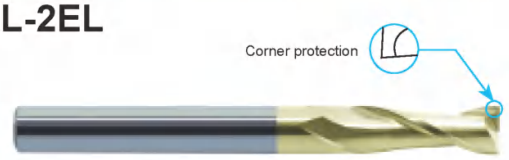
Applicable workpiece material table ◎Very suitable ○Suitable

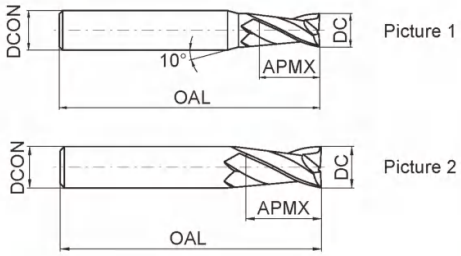
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B553
Non-standard customization B652-B653

2-flute flattened end mills with straight shank and long cutting edge

PML-2EL





Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PML-2EL-D3.0	3.0	6	12	75	2	Picture 1	○
PML-2EL-D4.0	4.0	6	15	75	2	Picture 1	○
PML-2EL-D5.0	5.0	6	20	75	2	Picture 1	○
PML-2EL-D6.0	6.0	6	20	75	2	Picture 2	○
PML-2EL-D8.0	8.0	8	25	100	2	Picture 2	○
PML-2EL-D10.0	10.0	10	30	100	2	Picture 2	○
PML-2EL-D12.0	12.0	12	35	100	2	Picture 2	○
PML-2EL-D14.0	14.0	14	40	100	2	Picture 2	○
PML-2EL-D16.0	16.0	16	50	150	2	Picture 2	○
PML-2EL-D20.0	20.0	20	55	150	2	Picture 2	○

● Stock available ○ Make-to-order

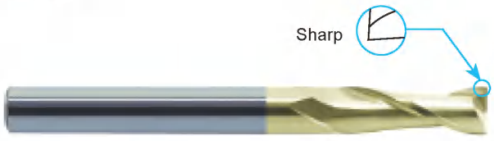
Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

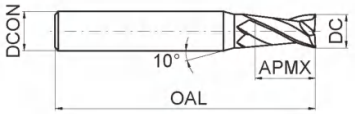
Code key B294
Graphics category and identification B295
Cutting parameters B552
Non-standard customization B652-B653

2-flute flattened end mills with straight shank and long cutting edge

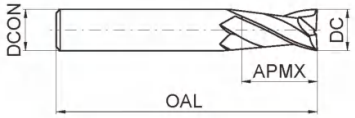
PML-2FL



● PML-2F series with long cutting edge.



Picture 1



Picture 2

Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PML-2FL-D3.0	3.0	6	12	75	2	Picture 1	○
PML-2FL-D4.0	4.0	6	15	75	2	Picture 1	○
PML-2FL-D5.0	5.0	6	20	75	2	Picture 1	○
PML-2FL-D6.0	6.0	6	20	75	2	Picture 2	○
PML-2FL-D8.0	8.0	8	25	100	2	Picture 2	○
PML-2FL-D10.0	10.0	10	30	100	2	Picture 2	○
PML-2FL-D12.0	12.0	12	35	100	2	Picture 2	○
PML-2FL-D14.0	14.0	14	40	100	2	Picture 2	○
PML-2FL-D16.0	16.0	16	50	150	2	Picture 2	○
PML-2FL-D20.0	20.0	20	55	150	2	Picture 2	○

● Stock available ○ Make-to-order

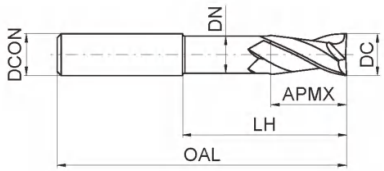
Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B553
Non-standard customization B652-B653

2-flute flattened end mills with straight shank, long neck and short cutting edge

PML-2EFP



● High-rigidity short cutting edge, suitable for heavy cutting and also deep cavity milling.

Type	Basic dimension(mm)						Number of teeth Z	Stock
	DC	DCON	APMX	LH	DN	OAL		
PML-2EFP-D6.0	6.0	6	9	30	5.8	75	2	○
PML-2EFP-D8.0	8.0	8	12	40	7.8	100	2	○
PML-2EFP-D10.0	10.0	10	15	50	9.6	100	2	○
PML-2EFP-D12.0	12.0	12	18	50	11.5	100	2	○
PML-2EFP-D16.0	16.0	16	24	50	15.5	150	2	○
PML-2EFP-D20.0	20.0	20	30	60	19.5	150	2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B554
Non-standard customization B652-B653

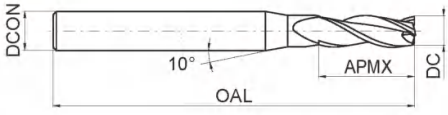
3-flute flattened end mills with straight shank


Side face

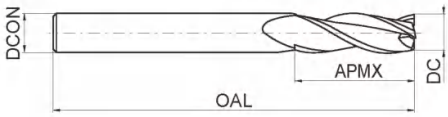

Step shoulder


Straight slot

PML-3E-H

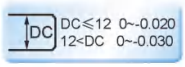


Picture 1



Picture 2

● Especially suitable for slot milling. ● Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PML-3E-D3.0S-H	3.0	4	8	50	3	Picture 1	○
PML-3E-D3.0-H	3.0	6	8	50	3	Picture 1	○
PML-3E-D3.5-H	3.5	6	10	50	3	Picture 1	○
PML-3E-D4.0S-H	4.0	4	11	50	3	Picture 2	○
PML-3E-D4.0-H	4.0	6	11	50	3	Picture 1	○
PML-3E-D4.5-H	4.5	6	11	50	3	Picture 1	○
PML-3E-D5.0-H	5.0	6	13	50	3	Picture 1	○
PML-3E-D5.5-H	5.5	6	16	50	3	Picture 1	○
PML-3E-D6.0-H	6.0	6	16	50	3	Picture 2	○
PML-3E-D7.0-H	7.0	8	20	60	3	Picture 1	○
PML-3E-D8.0-H	8.0	8	20	60	3	Picture 2	○
PML-3E-D9.0-H	9.0	10	22	75	3	Picture 1	○
PML-3E-D10.0-H	10.0	10	25	75	3	Picture 2	○
PML-3E-D11.0-H	11.0	12	26	75	3	Picture 1	○
PML-3E-D12.0-H	12.0	12	30	75	3	Picture 2	○
PML-3E-D14.0-H	14.0	14	32	75	3	Picture 2	○
PML-3E-D16.0-H	16.0	16	45	100	3	Picture 2	○
PML-3E-D18.0-H	18.0	18	45	100	3	Picture 2	○
PML-3E-D20.0-H	20.0	20	45	100	3	Picture 2	○

● Stock available ○ Make-to-order

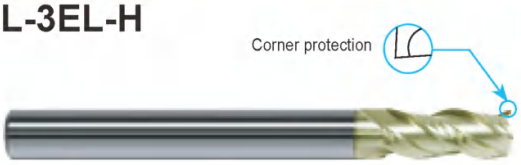
Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

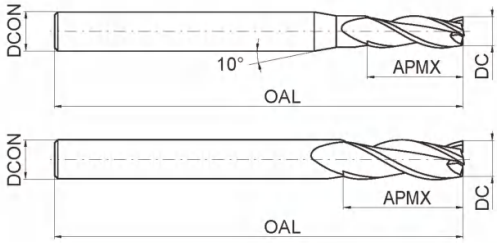
Code key B294 Graphics category and identification B295 Cutting parameters B555 Non-standard customization B652-B653

3-flute flattened end mills with straight shank and long cutting edge

PML-3EL-H



● PML-3E-H series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PML-3EL-D3.0-H	3.0	6	12	75	3	Picture 1	○
PML-3EL-D4.0-H	4.0	6	15	75	3	Picture 1	○
PML-3EL-D5.0-H	5.0	6	20	75	3	Picture 1	○
PML-3EL-D6.0-H	6.0	6	20	75	3	Picture 2	○
PML-3EL-D8.0-H	8.0	8	25	100	3	Picture 2	○
PML-3EL-D10.0-H	10.0	10	30	100	3	Picture 2	○
PML-3EL-D12.0-H	12.0	12	35	100	3	Picture 2	○
PML-3EL-D14.0-H	14.0	14	40	100	3	Picture 2	○
PML-3EL-D16.0-H	16.0	16	50	150	3	Picture 2	○
PML-3EL-D20.0-H	20.0	20	55	150	3	Picture 2	○

● Stock available ○ Make-to-order

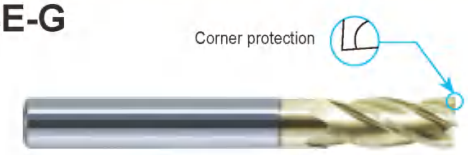
Applicable workpiece material table ◎Very suitable ○Suitable

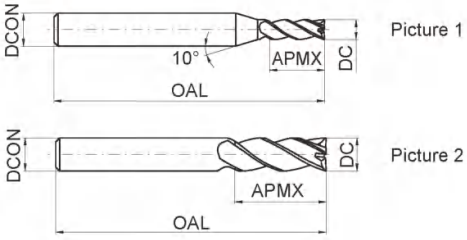
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B555
Non-standard customization B652-B653

4-flute flattened end mills with straight shank

PML-4E-G





● Very suitable for side milling. ● Wide application.

Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PML-4E-D1.0S-G	1.0	4	3	50	4	Picture 1	●
PML-4E-D1.0-G	1.0	6	3	50	4	Picture 1	●
PML-4E-D1.5S-G	1.5	4	4	50	4	Picture 1	●
PML-4E-D1.5-G	1.5	6	4	50	4	Picture 1	●
PML-4E-D2.0S-G	2.0	4	6	50	4	Picture 1	●
PML-4E-D2.0-G	2.0	6	6	50	4	Picture 1	●
PML-4E-D2.5S-G	2.5	4	8	50	4	Picture 1	●
PML-4E-D2.5-G	2.5	6	8	50	4	Picture 1	●
PML-4E-D3.0S-G	3.0	4	8	50	4	Picture 1	●
PML-4E-D3.0-G	3.0	6	8	50	4	Picture 1	●
PML-4E-D3.5-G	3.5	6	10	50	4	Picture 1	●
PML-4E-D4.0S-G	4.0	4	11	50	4	Picture 2	●
PML-4E-D4.0-G	4.0	6	11	50	4	Picture 1	●
PML-4E-D4.5-G	4.5	6	11	50	4	Picture 1	●
PML-4E-D5.0-G	5.0	6	13	50	4	Picture 1	●
PML-4E-D5.5-G	5.5	6	16	50	4	Picture 1	●
PML-4E-D6.0-G	6.0	6	16	50	4	Picture 2	●
PML-4E-D7.0-G	7.0	8	20	60	4	Picture 1	●
PML-4E-D8.0-G	8.0	8	20	60	4	Picture 2	●
PML-4E-D9.0-G	9.0	10	22	75	4	Picture 1	●
PML-4E-D10.0-G	10.0	10	25	75	4	Picture 2	●
PML-4E-D11.0-G	11.0	12	26	75	4	Picture 1	●
PML-4E-D12.0-G	12.0	12	30	75	4	Picture 2	●
PML-4E-D14.0-G	14.0	14	32	75	4	Picture 2	●
PML-4E-D16.0-G	16.0	16	45	100	4	Picture 2	●
PML-4E-D18.0-G	18.0	18	45	100	4	Picture 2	●
PML-4E-D20.0-G	20.0	20	45	100	4	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B556-B557
Non-standard customization B652-B653

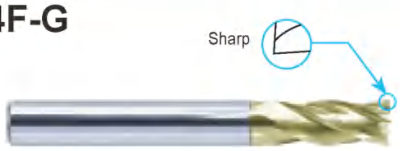
4-flute flattened end mills with straight shank

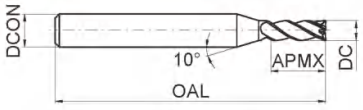

Side face


Step shoulder

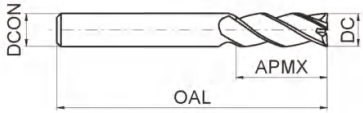

Straight slot

PML-4F-G



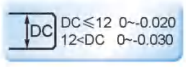


Picture 1



Picture 2

● Very suitable for side milling. ● Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PML-4F-D1.0S-G	1.0	4	3	50	4	Picture 1	○
PML-4F-D1.0-G	1.0	6	3	50	4	Picture 1	○
PML-4F-D1.5S-G	1.5	4	4	50	4	Picture 1	○
PML-4F-D1.5-G	1.5	6	4	50	4	Picture 1	○
PML-4F-D2.0S-G	2.0	4	6	50	4	Picture 1	○
PML-4F-D2.0-G	2.0	6	6	50	4	Picture 1	○
PML-4F-D2.5S-G	2.5	4	8	50	4	Picture 1	○
PML-4F-D2.5-G	2.5	6	8	50	4	Picture 1	○
PML-4F-D3.0S-G	3.0	4	8	50	4	Picture 1	○
PML-4F-D3.0-G	3.0	6	8	50	4	Picture 1	○
PML-4F-D3.5-G	3.5	6	10	50	4	Picture 1	○
PML-4F-D4.0S-G	4.0	4	11	50	4	Picture 2	○
PML-4F-D4.0-G	4.0	6	11	50	4	Picture 1	○
PML-4F-D4.5-G	4.5	6	11	50	4	Picture 1	○
PML-4F-D5.0-G	5.0	6	13	50	4	Picture 1	○
PML-4F-D5.5-G	5.5	6	16	50	4	Picture 1	○
PML-4F-D6.0-G	6.0	6	16	50	4	Picture 2	○
PML-4F-D7.0-G	7.0	8	20	60	4	Picture 1	○
PML-4F-D8.0-G	8.0	8	20	60	4	Picture 2	○
PML-4F-D9.0-G	9.0	10	22	75	4	Picture 1	○
PML-4F-D10.0-G	10.0	10	25	75	4	Picture 2	○
PML-4F-D11.0-G	11.0	12	26	75	4	Picture 1	○
PML-4F-D12.0-G	12.0	12	30	75	4	Picture 2	○
PML-4F-D14.0-G	14.0	14	32	75	4	Picture 2	○
PML-4F-D16.0-G	16.0	16	45	100	4	Picture 2	○
PML-4F-D18.0-G	18.0	18	45	100	4	Picture 2	○
PML-4F-D20.0-G	20.0	20	45	100	4	Picture 2	○

● Stock available ○ Make-to-order

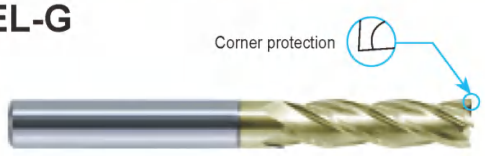
Applicable workpiece material table ◎Very suitable ○Suitable

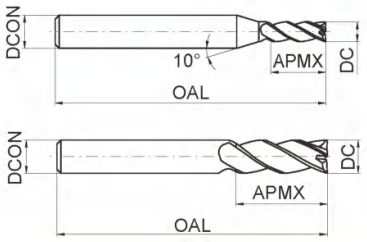
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B558-B559
Non-standard customization B652-B653

4-flute flattened end mills with straight shank and long cutting edge

PML-4EL-G





● PML-4E-G series with long cutting edge.

Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PML-4EL-D3.0-G	3.0	6	12	75	4	Picture 1	○
PML-4EL-D4.0-G	4.0	6	15	75	4	Picture 1	○
PML-4EL-D5.0-G	5.0	6	20	75	4	Picture 1	○
PML-4EL-D6.0-G	6.0	6	20	75	4	Picture 2	○
PML-4EL-D8.0-G	8.0	8	25	100	4	Picture 2	○
PML-4EL-D10.0-G	10.0	10	30	100	4	Picture 2	○
PML-4EL-D12.0-G	12.0	12	35	100	4	Picture 2	○
PML-4EL-D14.0-G	14.0	14	40	100	4	Picture 2	○
PML-4EL-D16.0-G	16.0	16	50	150	4	Picture 2	○
PML-4EL-D20.0-G	20.0	20	55	150	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

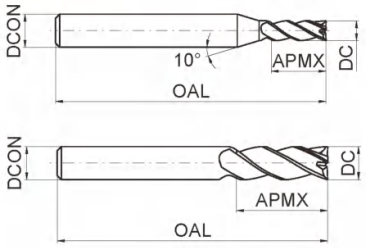
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B556-B557
Non-standard customization B652-B653

4-flute flattened end mills with straight shank and long cutting edge

PML-4FL-G

● PML-4F-G series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PML-4FL-D3.0-G	3.0	6	12	75	4	Picture 1	○
PML-4FL-D4.0-G	4.0	6	15	75	4	Picture 1	○
PML-4FL-D5.0-G	5.0	6	20	75	4	Picture 1	○
PML-4FL-D6.0-G	6.0	6	20	75	4	Picture 2	○
PML-4FL-D8.0-G	8.0	8	25	100	4	Picture 2	○
PML-4FL-D10.0-G	10.0	10	30	100	4	Picture 2	○
PML-4FL-D12.0-G	12.0	12	35	100	4	Picture 2	○
PML-4FL-D14.0-G	14.0	14	40	100	4	Picture 2	○
PML-4FL-D16.0-G	16.0	16	50	150	4	Picture 2	○
PML-4FL-D20.0-G	20.0	20	55	150	4	Picture 2	○

● Stock available ○ Make-to-order

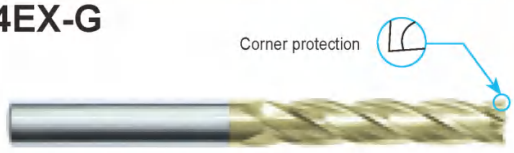
Applicable workpiece material table ◎Very suitable ○Suitable

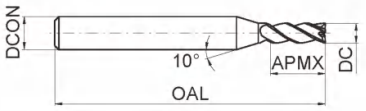
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B558-B559
Non-standard customization B652-B653

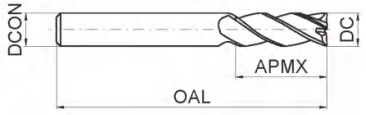
4-flute flattened end mills with straight shank and extra long cutting edge

PML-4EX-G





Picture 1

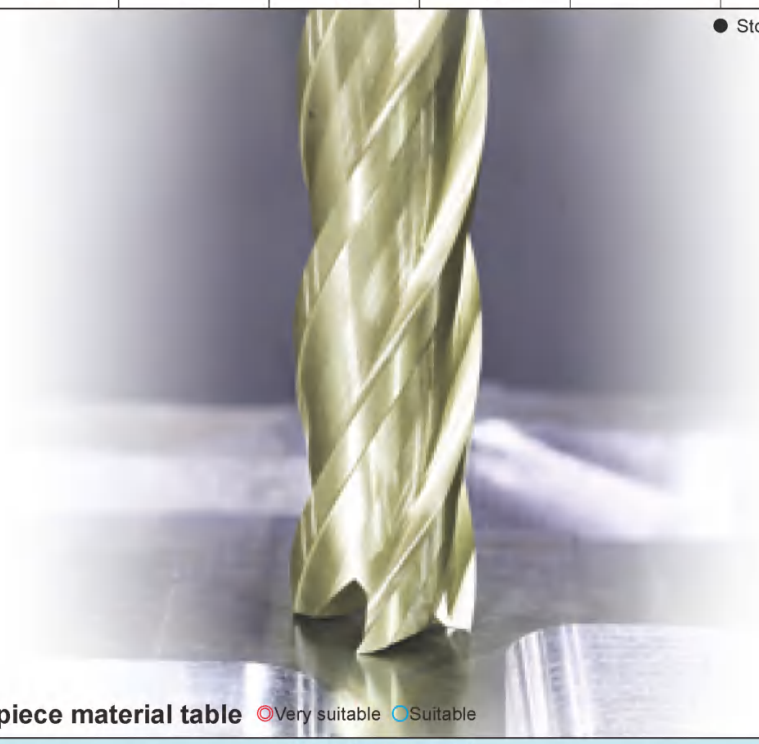


Picture 2

● Extra long cutting edge, for deep side wall machining.

Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PML-4EX-D3.0-G	3.0	6	20	75	4	Picture 1	○
PML-4EX-D4.0-G	4.0	6	25	75	4	Picture 1	○
PML-4EX-D5.0-G	5.0	6	30	75	4	Picture 1	○
PML-4EX-D6.0-G	6.0	6	30	75	4	Picture 2	○
PML-4EX-D8.0-G	8.0	8	40	100	4	Picture 2	○
PML-4EX-D10.0-G	10.0	10	50	110	4	Picture 2	○
PML-4EX-D12.0-G	12.0	12	50	110	4	Picture 2	○
PML-4EX-D16.0-G	16.0	16	70	150	4	Picture 2	○
PML-4EX-D20.0-G	20.0	20	75	150	4	Picture 2	○

● Stock available ○ Make-to-order



Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B560
Non-standard customization B652-B653

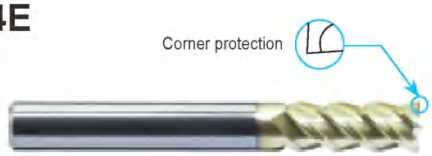

Side face

Step shoulder

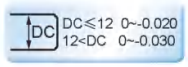
Straight slot

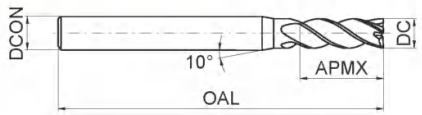
4-flute flattened end mills with straight shank

PML-4E

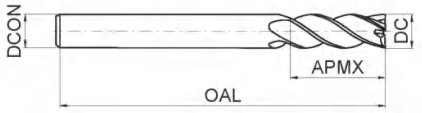


- Very suitable for side milling and shallow slot machining.
- Wide application.





Picture 1



Picture 2

Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PML-4E-D1.0S	1.0	4	3	50	4	Picture 1	○
PML-4E-D1.0	1.0	6	3	50	4	Picture 1	○
PML-4E-D1.5S	1.5	4	4	50	4	Picture 1	○
PML-4E-D1.5	1.5	6	4	50	4	Picture 1	○
PML-4E-D2.0S	2.0	4	6	50	4	Picture 1	○
PML-4E-D2.0	2.0	6	6	50	4	Picture 1	○
PML-4E-D2.5S	2.5	4	8	50	4	Picture 1	○
PML-4E-D2.5	2.5	6	8	50	4	Picture 1	○
PML-4E-D3.0S	3.0	4	8	50	4	Picture 1	○
PML-4E-D3.0	3.0	6	8	50	4	Picture 1	○
PML-4E-D3.5	3.5	6	10	50	4	Picture 1	○
PML-4E-D4.0S	4.0	4	11	50	4	Picture 2	○
PML-4E-D4.0	4.0	6	11	50	4	Picture 1	○
PML-4E-D4.5	4.5	6	11	50	4	Picture 1	○
PML-4E-D5.0	5.0	6	13	50	4	Picture 1	○
PML-4E-D5.5	5.5	6	16	50	4	Picture 1	○
PML-4E-D6.0	6.0	6	16	50	4	Picture 2	○
PML-4E-D7.0	7.0	8	20	60	4	Picture 1	○
PML-4E-D8.0	8.0	8	20	60	4	Picture 2	○
PML-4E-D9.0	9.0	10	22	75	4	Picture 1	○
PML-4E-D10.0	10.0	10	25	75	4	Picture 2	○
PML-4E-D11.0	11.0	12	26	75	4	Picture 1	○
PML-4E-D12.0	12.0	12	30	75	4	Picture 2	○
PML-4E-D14.0	14.0	14	32	75	4	Picture 2	○
PML-4E-D16.0	16.0	16	45	100	4	Picture 2	○
PML-4E-D18.0	18.0	18	45	100	4	Picture 2	○
PML-4E-D20.0	20.0	20	45	100	4	Picture 2	○

● Stock available ○ Make-to-order

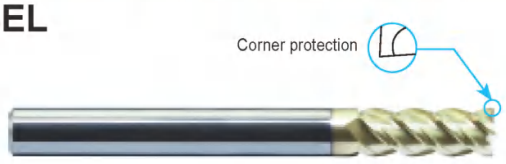
Applicable workpiece material table ◎Very suitable ○Suitable

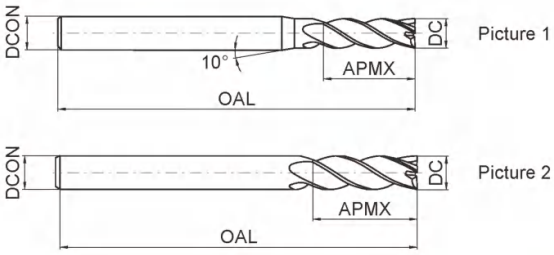
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294 Graphics category and identification B295 Cutting parameters B561-B562 Non-standard customization B652-B653

4-flute flattened end mills with straight shank and long cutting edge

PML-4EL





● PML-4E series with long cutting edge.

Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PML-4EL-D3.0	3.0	6	12	75	4	Picture 1	○
PML-4EL-D4.0	4.0	6	15	75	4	Picture 1	○
PML-4EL-D5.0	5.0	6	20	75	4	Picture 1	○
PML-4EL-D6.0	6.0	6	20	75	4	Picture 2	○
PML-4EL-D8.0	8.0	8	25	100	4	Picture 2	○
PML-4EL-D10.0	10.0	10	30	100	4	Picture 2	○
PML-4EL-D12.0	12.0	12	35	100	4	Picture 2	○
PML-4EL-D14.0	14.0	14	40	100	4	Picture 2	○
PML-4EL-D16.0	16.0	16	50	150	4	Picture 2	○
PML-4EL-D20.0	20.0	20	55	150	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B561-B562
Non-standard customization B652-B653

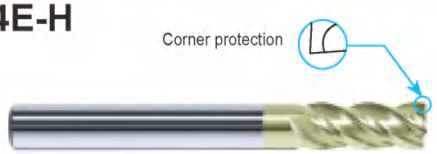
4-flute flattened end mills with straight shank

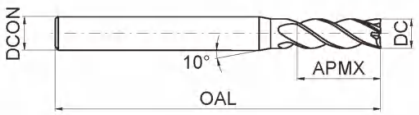

Side face


Step shoulder

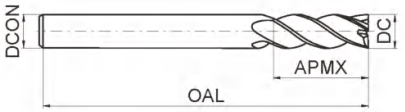

Straight slot

PML-4E-H



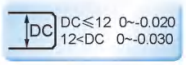


Picture 1



Picture 2

● Most suitable for slot milling. ● Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PML-4E-D3.0S-H	3.0	4	8	50	4	Picture 1	○
PML-4E-D3.0-H	3.0	6	8	50	4	Picture 1	○
PML-4E-D3.5-H	3.5	6	10	50	4	Picture 1	○
PML-4E-D4.0S-H	4.0	4	11	50	4	Picture 2	○
PML-4E-D4.0-H	4.0	6	11	50	4	Picture 1	○
PML-4E-D4.5-H	4.5	6	11	50	4	Picture 1	○
PML-4E-D5.0-H	5.0	6	13	50	4	Picture 1	○
PML-4E-D5.5-H	5.5	6	16	50	4	Picture 1	○
PML-4E-D6.0-H	6.0	6	16	50	4	Picture 2	○
PML-4E-D7.0-H	7.0	8	20	60	4	Picture 1	○
PML-4E-D8.0-H	8.0	8	20	60	4	Picture 2	○
PML-4E-D9.0-H	9.0	10	22	75	4	Picture 1	○
PML-4E-D10.0-H	10.0	10	25	75	4	Picture 2	○
PML-4E-D11.0-H	11.0	12	26	75	4	Picture 1	○
PML-4E-D12.0-H	12.0	12	30	75	4	Picture 2	○
PML-4E-D14.0-H	14.0	14	32	75	4	Picture 2	○
PML-4E-D16.0-H	16.0	16	45	100	4	Picture 2	○
PML-4E-D18.0-H	18.0	18	45	100	4	Picture 2	○
PML-4E-D20.0-H	20.0	20	45	100	4	Picture 2	○

● Stock available ○ Make-to-order

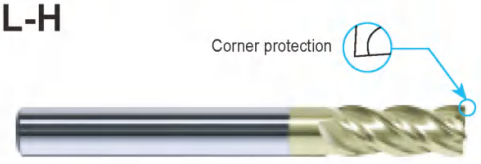
Applicable workpiece material table ◎Very suitable ○Suitable

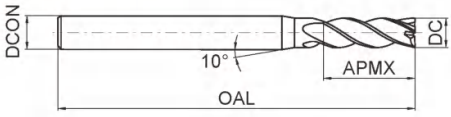
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294 Graphics category and identification B295 Cutting parameters B556-B557 Non-standard customization B652-B653

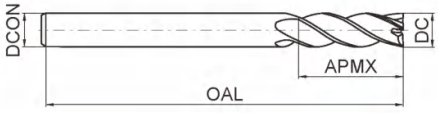
4-flute flattened end mills with straight shank and long cutting edge

PML-4EL-H



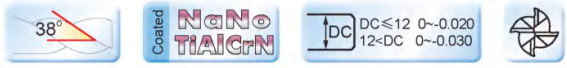


Picture 1



Picture 2

● PML-4E-H series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PML-4EL-D3.0-H	3.0	6	12	75	4	Picture 1	○
PML-4EL-D4.0-H	4.0	6	15	75	4	Picture 1	○
PML-4EL-D5.0-H	5.0	6	20	75	4	Picture 1	○
PML-4EL-D6.0-H	6.0	6	20	75	4	Picture 2	○
PML-4EL-D8.0-H	8.0	8	25	100	4	Picture 2	○
PML-4EL-D10.0-H	10.0	10	30	100	4	Picture 2	○
PML-4EL-D12.0-H	12.0	12	35	100	4	Picture 2	○
PML-4EL-D14.0-H	14.0	14	40	100	4	Picture 2	○
PML-4EL-D16.0-H	16.0	16	50	150	4	Picture 2	○
PML-4EL-D20.0-H	20.0	20	55	150	4	Picture 2	○

● Stock available ○ Make-to-order

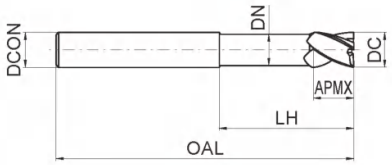
Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B556-B557
Non-standard customization B652-B653

4-flute flattened end mills with straight shank, long neck and short cutting edge

PML-4EFP



● High-rigidity short cutting edge, suitable for heavy cutting and also deep cavity milling.

Type	Basic dimension(mm)						Number of teeth Z	Stock
	DC	DCON	APMX	LH	DN	OAL		
PML-4EFP-D6.0	6.0	6	9	30	5.8	75	4	○
PML-4EFP-D8.0	8.0	8	12	40	7.8	100	4	○
PML-4EFP-D10.0	10.0	10	15	50	9.6	100	4	○
PML-4EFP-D12.0	12.0	12	18	50	11.5	100	4	○
PML-4EFP-D16.0	16.0	16	24	50	15.5	150	4	○
PML-4EFP-D20.0	20.0	20	30	60	19.5	150	4	○

● Stock available ○ Make-to-order

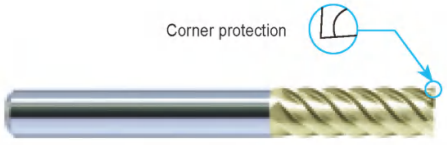
Applicable workpiece material table ◎Very suitable ○Suitable

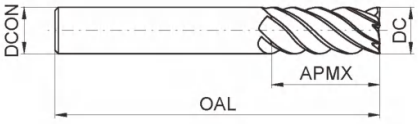
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B563-B564
Non-standard customization B652-B653

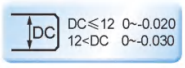
6-flute flattened end mills with straight shank

PML-6E





- Perfect rigidity, very suitable for side finish machining.
- High speed, high feed rate machining applicable.



Type	Basic dimension(mm)				Number of teeth Z	Stock
	DC	DCON	APMX	OAL		
PML-6E-D6.0	6.0	6	18	60	6	○
PML-6E-D8.0	8.0	8	20	60	6	○
PML-6E-D10.0	10.0	10	30	75	6	○
PML-6E-D12.0	12.0	12	32	75	6	○
PML-6E-D16.0	16.0	16	40	100	6	○
PML-6E-D20.0	20.0	20	45	100	6	○

● Stock available ○ Make-to-order

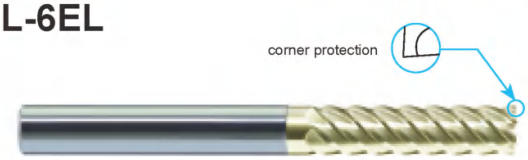
Applicable workpiece material table ◎Very suitable ○Suitable

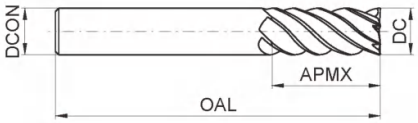
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B565
Non-standard customization B652-B653

6-flute flattened end mills with straight shank and long cutting edge

PML-6EL





● PML-6E series with long cutting edge.

Type	Basic dimension(mm)				Number of teeth Z	Stock
	DC	DCON	APMX	OAL		
PML-6EL-D6.0	6.0	6	24	75	6	○
PML-6EL-D8.0	8.0	8	32	75	6	○
PML-6EL-D10.0	10.0	10	40	100	6	○
PML-6EL-D12.0	12.0	12	45	100	6	○
PML-6EL-D16.0	16.0	16	64	150	6	○
PML-6EL-D20.0	20.0	20	75	150	6	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B566
Non-standard customization B652-B653

2-flute ball nose end mills with straight shank

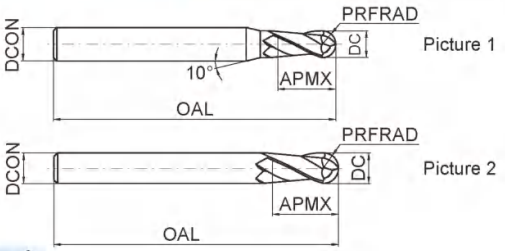

Profile

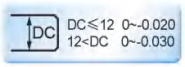

Cavity


Ball nose slot

PML-2B

- For profile milling, high speed machining applicable.
- Wide application.





Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	PRFRAD	DCON	APMX	OAL			
PML-2B-R0.5S	1.0	0.5	4	2	50	2	Picture 1	●
PML-2B-R0.5	1.0	0.5	6	2	50	2	Picture 1	●
PML-2B-R0.75S	1.5	0.75	4	3	50	2	Picture 1	●
PML-2B-R0.75	1.5	0.75	6	3	50	2	Picture 1	●
PML-2B-R1.0S	2.0	1.0	4	4	50	2	Picture 1	●
PML-2B-R1.0	2.0	1.0	6	4	50	2	Picture 1	●
PML-2B-R1.25S	2.5	1.25	4	5	50	2	Picture 1	●
PML-2B-R1.25	2.5	1.25	6	5	50	2	Picture 1	●
PML-2B-R1.5S	3.0	1.5	4	6	50	2	Picture 1	●
PML-2B-R1.5	3.0	1.5	6	6	50	2	Picture 1	●
PML-2B-R1.75	3.5	1.75	6	8	50	2	Picture 1	●
PML-2B-R2.0S	4.0	2.0	4	8	50	2	Picture 2	●
PML-2B-R2.0	4.0	2.0	6	8	50	2	Picture 1	●
PML-2B-R2.5	5.0	2.5	6	10	50	2	Picture 1	●
PML-2B-R2.75	5.5	2.75	6	12	50	2	Picture 1	●
PML-2B-R3.0	6.0	3.0	6	12	50	2	Picture 2	●
PML-2B-R3.5	7.0	3.5	8	14	60	2	Picture 1	●
PML-2B-R4.0	8.0	4.0	8	16	60	2	Picture 2	●
PML-2B-R4.5	9.0	4.5	10	18	75	2	Picture 1	●
PML-2B-R5.0	10.0	5.0	10	20	75	2	Picture 2	●
PML-2B-R6.0	12.0	6.0	12	24	75	2	Picture 2	●
PML-2B-R7.0	14.0	7.0	14	28	75	2	Picture 2	●
PML-2B-R8.0	16.0	8.0	16	32	100	2	Picture 2	●
PML-2B-R10.0	20.0	10.0	20	40	100	2	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B567-B568
Non-standard customization B652-B653

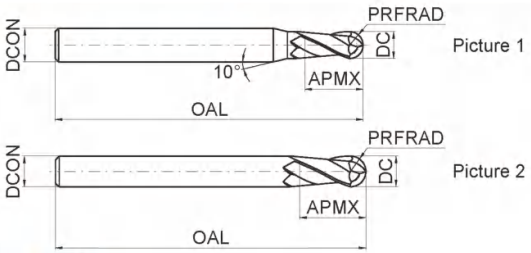
2-flute ball nose end mills with straight shank


Profile

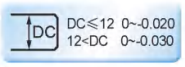

Cavity


Ball nose slot

PML-2BL



● PML-2B series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	PRFRAD	DCON	APMX	OAL			
PML-2BL-R1.0	2.0	1.0	6	4	75	2	Picture 1	○
PML-2BL-R1.25	2.5	1.25	6	5	75	2	Picture 1	○
PML-2BL-R1.5	3.0	1.5	6	6	75	2	Picture 1	○
PML-2BL-R1.75	3.5	1.75	6	8	75	2	Picture 1	○
PML-2BL-R2.0	4.0	2.0	6	8	75	2	Picture 1	○
PML-2BL-R2.5	5.0	2.5	6	10	75	2	Picture 1	○
PML-2BL-R2.75	5.5	2.75	6	12	75	2	Picture 1	○
PML-2BL-R3.0	6.0	3.0	6	12	75	2	Picture 2	○
PML-2BL-R3.5	7.0	3.5	8	14	75	2	Picture 1	○
PML-2BL-R4.0	8.0	4.0	8	16	100	2	Picture 2	○
PML-2BL-R4.5	9.0	4.5	10	18	100	2	Picture 1	○
PML-2BL-R5.0	10.0	5.0	10	20	100	2	Picture 2	○
PML-2BL-R6.0	12.0	6.0	12	24	100	2	Picture 2	○
PML-2BL-R7.0	14.0	7.0	14	28	100	2	Picture 2	○
PML-2BL-R8.0	16.0	8.0	16	32	150	2	Picture 2	○
PML-2BL-R10.0	20.0	10.0	20	40	150	2	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B567-B568
Non-standard customization B652-B653

2-flute ball nose end mills with straight shank, long neck and short cutting edge


Profile

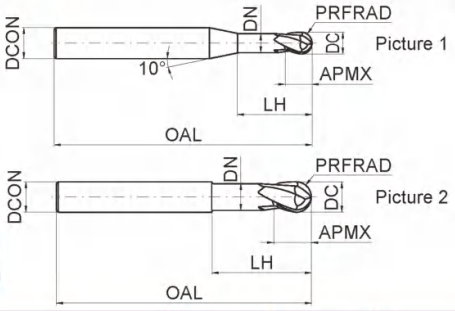

Cavity


Ball nose slot

PML-2BFP

- High-rigidity short cutting edge, suitable for heavy cutting.

30° | Coated NaNo TiAlCrN | DC DC≤12 0~-0.020 12<DC 0~-0.030 | PRFRAD PRFRAD±0.01



Type	Basic dimension(mm)							Number of teeth Z	Geometry	Stock
	DC	PRFRAD	APMX	DN	LH	DCON	OAL			
PML-2BFP-R0.5	1.0	0.5	1	0.95	2.5	6	75	2	Picture 1	○
PML-2BFP-R0.75	1.5	0.75	1.5	1.45	3.0	6	75	2	Picture 1	○
PML-2BFP-R1.0	2.0	1.0	2	1.95	4.0	6	75	2	Picture 1	○
PML-2BFP-R1.5	3.0	1.5	3	2.85	6.0	6	75	2	Picture 1	○
PML-2BFP-R2.0	4.0	2.0	4	3.85	8.0	6	75	2	Picture 1	○
PML-2BFP-R2.5	5.0	2.5	5	4.85	10.0	6	75	2	Picture 1	○
PML-2BFP-R3.0	6.0	3.0	6	5.8	12.0	6	75	2	Picture 2	○
PML-2BFP-R4.0	8.0	4.0	8	7.8	16.0	8	100	2	Picture 2	○
PML-2BFP-R5.0	10.0	5.0	10	9.6	20.0	10	100	2	Picture 2	○
PML-2BFP-R6.0	12.0	6.0	12	11.5	24.0	12	100	2	Picture 2	○
PML-2BFP-R8.0	16.0	8.0	16	15.5	32.0	16	150	2	Picture 2	○
PML-2BFP-R10.0	20.0	10.0	20	19.5	40.0	20	150	2	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294 | Graphics category and identification B295 | Cutting parameters B567-B568 | Non-standard customization B652-B653

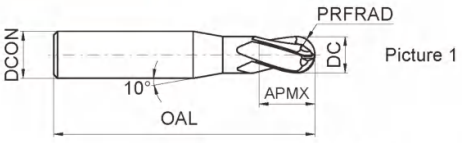
4-flute ball nose end mills with straight shank

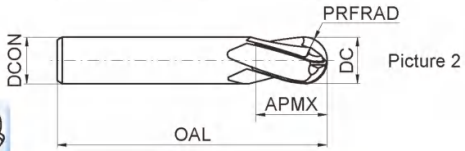

Profile


Cavity

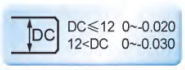

Ball nose slot

PML-4B





● 4-flute ball nose end mill can operate with higher feed speed and machining efficiency, extending too life in machining high-hardness workpiece.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	PRFRAD	DCON	APMX	OAL			
PML-4B-R1.5	3.0	1.5	6	6	50	4	Picture 1	○
PML-4B-R2.0	4.0	2.0	6	8	50	4	Picture 1	○
PML-4B-R2.5	5.0	2.5	6	10	50	4	Picture 1	○
PML-4B-R3.0	6.0	3.0	6	12	50	4	Picture 2	○
PML-4B-R4.0	8.0	4.0	8	16	60	4	Picture 2	○
PML-4B-R5.0	10.0	5.0	10	20	75	4	Picture 2	○
PML-4B-R6.0	12.0	6.0	12	24	75	4	Picture 2	○
PML-4B-R7.0	14.0	7.0	14	28	75	4	Picture 2	○
PML-4B-R8.0	16.0	8.0	16	32	100	4	Picture 2	○
PML-4B-R9.0	18.0	9.0	18	36	100	4	Picture 2	○
PML-4B-R10.0	20.0	10.0	20	40	100	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294 Graphics category and identification B295 Cutting parameters B569 Non-standard customization B652-B653

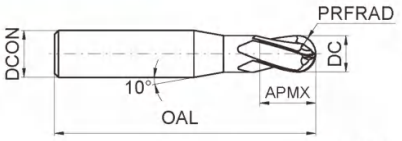
4-flute ball nose end mills with straight and long shank

Profile | Cavity | Ball nose slot

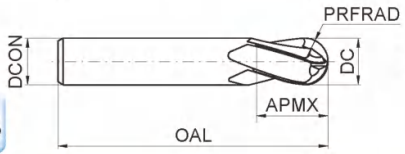
PML-4BL

- PML-4B series with long shank.

30° | Coated NaNo TiAlCrN | DC DC≤12 0~-0.020 12<DC 0~-0.030 | PRFRAD PRFRAD±0.01



Picture 1



Picture 2

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	PRFRAD	DCON	APMX	OAL			
PML-4BL-R1.5	3.0	1.5	6	6	75	4	Picture 1	○
PML-4BL-R2.0	4.0	2.0	6	8	75	4	Picture 1	○
PML-4BL-R2.5	5.0	2.5	6	10	75	4	Picture 1	○
PML-4BL-R3.0	6.0	3.0	6	12	75	4	Picture 2	○
PML-4BL-R4.0	8.0	4.0	8	16	100	4	Picture 2	○
PML-4BL-R5.0	10.0	5.0	10	20	100	4	Picture 2	○
PML-4BL-R6.0	12.0	6.0	12	24	100	4	Picture 2	○
PML-4BL-R7.0	14.0	7.0	14	28	100	4	Picture 2	○
PML-4BL-R8.0	16.0	8.0	16	32	150	4	Picture 2	○
PML-4BL-R9.0	18.0	9.0	18	36	150	4	Picture 2	○
PML-4BL-R10.0	20.0	10.0	20	40	150	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294 | Graphics category and identification B295 | Cutting parameters B569 | Non-standard customization B652-B653

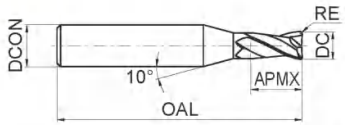
2-flute R end mills with straight shank

Radius shoulder | Profile | Radius corner slot

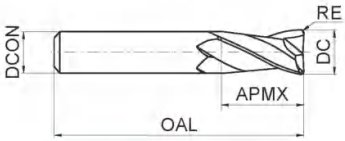
PML-2R

- Wide applications, applicable for several machining styles.

30° | Coated NaNo TiAlCrN | DC 0~-0.020



Picture 1



Picture 2

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
PML-2R-D1.0R0.2	1.0	0.2	4	3	50	2	Picture 1	○
PML-2R-D1.5R0.2	1.5	0.2	4	4	50	2	Picture 1	○
PML-2R-D2.0R0.2	2.0	0.2	4	6	50	2	Picture 1	○
PML-2R-D2.0R0.5	2.0	0.5	4	6	50	2	Picture 1	○
PML-2R-D2.5R0.2	2.5	0.2	4	8	50	2	Picture 1	○
PML-2R-D2.5R0.5	2.5	0.5	4	8	50	2	Picture 1	○
PML-2R-D3.0R0.2	3.0	0.2	4	8	50	2	Picture 1	○
PML-2R-D3.0R0.3	3.0	0.3	4	8	50	2	Picture 1	○
PML-2R-D3.0R0.5	3.0	0.5	4	8	50	2	Picture 1	○
PML-2R-D4.0R0.2	4.0	0.2	4	11	50	2	Picture 2	○
PML-2R-D4.0R0.3	4.0	0.3	4	11	50	2	Picture 2	○
PML-2R-D4.0R0.5	4.0	0.5	4	11	50	2	Picture 2	○
PML-2R-D4.0R1.0	4.0	1.0	4	11	50	2	Picture 2	○
PML-2R-D5.0R0.3	5.0	0.3	6	13	50	2	Picture 1	○
PML-2R-D5.0R0.5	5.0	0.5	6	13	50	2	Picture 1	○
PML-2R-D5.0R1.0	5.0	1.0	6	13	50	2	Picture 1	○
PML-2R-D6.0R0.3	6.0	0.3	6	16	50	2	Picture 2	○
PML-2R-D6.0R0.5	6.0	0.5	6	16	50	2	Picture 2	○
PML-2R-D6.0R1.0	6.0	1.0	6	16	50	2	Picture 2	○
PML-2R-D8.0R0.3	8.0	0.3	8	20	60	2	Picture 2	○
PML-2R-D8.0R0.5	8.0	0.5	8	20	60	2	Picture 2	○
PML-2R-D8.0R1.0	8.0	1.0	8	20	60	2	Picture 2	○
PML-2R-D10.0R0.5	10.0	0.5	10	25	75	2	Picture 2	○
PML-2R-D10.0R1.0	10.0	1.0	10	25	75	2	Picture 2	○
PML-2R-D10.0R1.5	10.0	1.5	10	25	75	2	Picture 2	○
PML-2R-D10.0R2.0	10.0	2.0	10	25	75	2	Picture 2	○
PML-2R-D12.0R0.5	12.0	0.5	12	30	75	2	Picture 2	○
PML-2R-D12.0R1.0	12.0	1.0	12	30	75	2	Picture 2	○
PML-2R-D12.0R1.5	12.0	1.5	12	30	75	2	Picture 2	○
PML-2R-D12.0R2.0	12.0	2.0	12	30	75	2	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294 | Graphics category and identification B295 | Cutting parameters B573 | Non-standard customization B652-B653

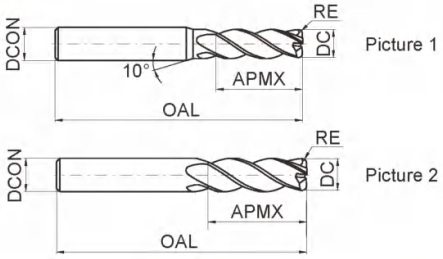
4-flute R end mills with straight shank

Radius shoulder | Profile | Radius corner slot

PML-4R

- Wide applications, applicable for several machining styles.

30° | Coated NaNo TiAlCrN | DC 0~-0.020



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
PML-4R-D3.0R0.2	3.0	0.2	6	8	50	4	Picture 1	●
PML-4R-D4.0R0.3	4.0	0.3	6	10	50	4	Picture 1	●
PML-4R-D4.0R0.5	4.0	0.5	6	10	50	4	Picture 1	●
PML-4R-D5.0R0.5	5.0	0.5	6	13	50	4	Picture 1	●
PML-4R-D5.0R1.0	5.0	1.0	6	13	50	4	Picture 1	●
PML-4R-D6.0R0.5	6.0	0.5	6	16	50	4	Picture 2	●
PML-4R-D6.0R1.0	6.0	1.0	6	16	50	4	Picture 2	●
PML-4R-D8.0R0.5	8.0	0.5	8	20	60	4	Picture 2	●
PML-4R-D8.0R1.0	8.0	1.0	8	20	60	4	Picture 2	●
PML-4R-D10.0R0.5	10.0	0.5	10	25	75	4	Picture 2	●
PML-4R-D10.0R1.0	10.0	1.0	10	25	75	4	Picture 2	●
PML-4R-D10.0R2.0	10.0	2.0	10	25	75	4	Picture 2	●
PML-4R-D10.0R3.0	10.0	3.0	10	25	75	4	Picture 2	●
PML-4R-D12.0R0.5	12.0	0.5	12	30	75	4	Picture 2	●
PML-4R-D12.0R1.0	12.0	1.0	12	30	75	4	Picture 2	●
PML-4R-D12.0R2.0	12.0	2.0	12	30	75	4	Picture 2	●
PML-4R-D12.0R3.0	12.0	3.0	12	30	75	4	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

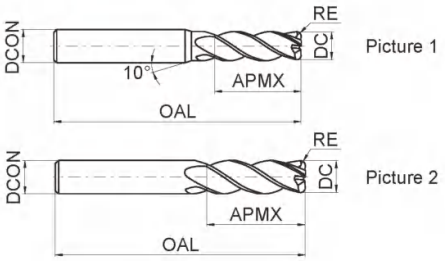
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294 | Graphics category and identification B295 | Cutting parameters B574 | Non-standard customization B652-B653

4-flute R end mills with straight shank

Radius shoulder | Profile | Radius corner slot

PML-4R-H



- Wide applications, applicable for several machining styles.

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
PML-4R-D3.0R0.2-H	3.0	0.2	6	8	50	4	Picture 1	●
PML-4R-D4.0R0.3-H	4.0	0.3	6	10	50	4	Picture 1	●
PML-4R-D4.0R0.5-H	4.0	0.5	6	10	50	4	Picture 1	●
PML-4R-D5.0R0.5-H	5.0	0.5	6	13	50	4	Picture 1	●
PML-4R-D5.0R1.0-H	5.0	1.0	6	13	50	4	Picture 1	●
PML-4R-D6.0R0.5-H	6.0	0.5	6	16	50	4	Picture 2	●
PML-4R-D6.0R1.0-H	6.0	1.0	6	16	50	4	Picture 2	●
PML-4R-D8.0R0.5-H	8.0	0.5	8	20	60	4	Picture 2	●
PML-4R-D8.0R1.0-H	8.0	1.0	8	20	60	4	Picture 2	●
PML-4R-D10R0.5-H	10.0	0.5	10	25	75	4	Picture 2	●
PML-4R-D10R1.0-H	10.0	1.0	10	25	75	4	Picture 2	●
PML-4R-D10R2.0-H	10.0	2.0	10	25	75	4	Picture 2	●
PML-4R-D10R3.0-H	10.0	3.0	10	25	75	4	Picture 2	●
PML-4R-D12R0.5-H	12.0	0.5	12	30	75	4	Picture 2	●
PML-4R-D12R1.0-H	12.0	1.0	12	30	75	4	Picture 2	●
PML-4R-D12R2.0-H	12.0	2.0	12	30	75	4	Picture 2	●
PML-4R-D12R3.0-H	12.0	3.0	12	30	75	4	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294 | Graphics category and identification B295 | Cutting parameters B574 | Non-standard customization B652-B653

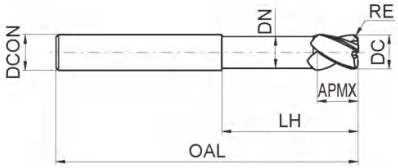
4-flute R end mills with straight shank, long neck and short cutting edge


Radius shoulder

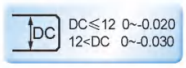

Profile


Radius corner slot

PML-4RFP



● Long shank and short cutting edge designed for deep cavity milling.



Type	Basic dimension(mm)							Number of teeth Z	Stock
	DC	RE	DCON	DN	APMX	LH	OAL		
PML-4RFP-D6.0R0.5	6.0	0.5	6	5.8	6	18	75	4	○
PML-4RFP-D6.0R1.0	6.0	1.0	6	5.8	6	18	75	4	○
PML-4RFP-D8.0R0.5	8.0	0.5	8	7.8	8	24	100	4	○
PML-4RFP-D8.0R1.0	8.0	1.0	8	7.8	8	24	100	4	○
PML-4RFP-D10.0R0.5	10.0	0.5	10	9.6	10	30	100	4	○
PML-4RFP-D10.0R1.0	10.0	1.0	10	9.6	10	30	100	4	○
PML-4RFP-D10.0R2.0	10.0	2.0	10	9.6	10	30	100	4	○
PML-4RFP-D12.0R0.5	12.0	0.5	12	11.5	12	36	100	4	○
PML-4RFP-D12.0R1.0	12.0	1.0	12	11.5	12	36	100	4	○
PML-4RFP-D12.0R2.0	12.0	2.0	12	11.5	12	36	100	4	○
PML-4RFP-D16.0R1.0	16.0	1.0	16	15.5	16	40	150	4	○
PML-4RFP-D16.0R2.0	16.0	2.0	16	15.5	16	40	150	4	○

● Stock available ○ Make-to-order

Applicable workpiece material table ◎Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
◎	◎	◎	○			○	◎			○	○

Code key B294
Graphics category and identification B295
Cutting parameters B574
Non-standard customization B652-B653