

Ball Nose, 2 flute, Taper Neck

## VC-XB

**Great for  
deep slotting  
of mold.**

**Size up**

**Neck taper of 1° type (half angle)  
has been added as a new size.**

●The neck is tapered for rigidity. These endmills are best for deep slotting of molds and for other machining that needs long overhang.

## VC-XB

# MIRACLE END MILLS

# VC-XB



## Ball Nose, 2 flute, Taper Neck

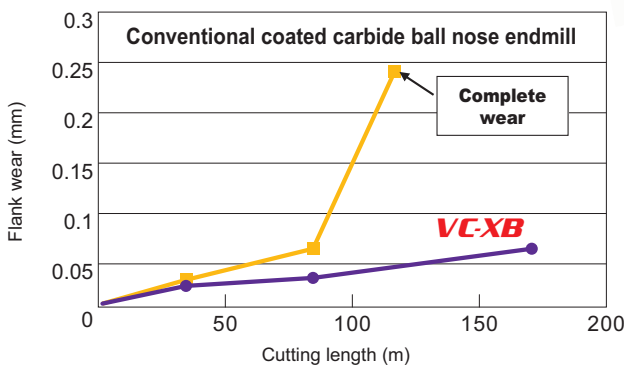
## Easy deep slotting: optimal for direct milling

### Ball nose endmill with taper neck.

The neck is tapered for rigidity. These endmills are best for deep slotting of mold and other machining that needs long overhang. The excellent wear resistance of the Miracle Coating ensures excellent performance in high-hardness-material machining.

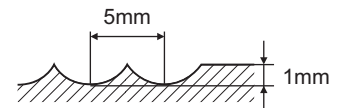


### Long tool life



#### CUTTING CONDITION

End mill	VC-XB (2 flute) R5
Work material	SKD61 (53HRC)
Revolution	5,000min <sup>-1</sup> (157m/min)
Feed rate	1,000mm/min(0.1mm/tooth)
Overhang	70mm
Cutting method	Climb cut, Air blow



### Stable processing

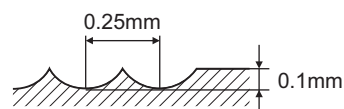
	VC-XB	Competitor
<b>Proper milling level</b> (Effect of Revolution and Feed per tooth)		
<b>Finishing surface</b> (Revolution 5,000min <sup>-1</sup> Feed per tooth 0.02mm/tooth)		

Coding

- .....good
- × .....generation of chatter

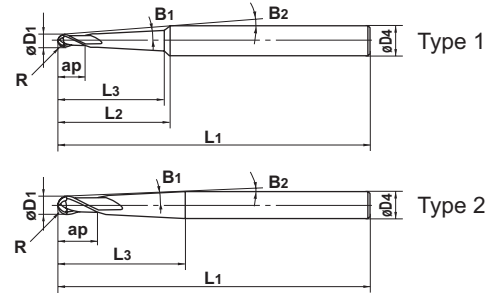
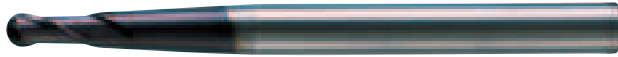
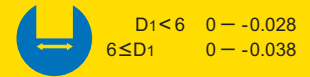
<Cutting condition>

End mill : R0.5×3°  
 (Neck length 42mm)  
 Work material : SKD61(52HRC)



## VC-XB

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● It is a ball nose end mill whose neck is tapered.

Unit : mm

Order Number	Radius of ball nose R	Dia. D1	Taper Angle One Side B1	Length of Cut ap	Neck Length L3	Under Shank Length L2	Cutting Edge to Shank Angle B2	Overall Length L1	Shank Dia. D4	No. of Flute N	Stock	Type
Size up VCXBR0050T0100L016	0.5	1	1°	2	16	22.3	6.5°	50	6	2	●	1
Size up R0050T0100L021	0.5	1	1°	2	21	27.0	5.4°	60	6	2	●	1
Size up R0050T0100L026	0.5	1	1°	2	26	31.8	4.6°	70	6	2	●	1
R0050T0130	0.5	1	1° 30'	2	23	28.5	5.1°	60	6	2	●	1
R0050T0300	0.5	1	3°	2	42	43.3	3.3°	80	6	2	●	1
R0050T0500	0.5	1	5°	2	23	25.2	5.8°	60	6	2	●	1
Size up R0100T0100L021	1	2	1°	4	21	25.8	4.6°	50	6	2	●	1
Size up R0100T0100L031	1	2	1°	4	31	35.3	3.3°	60	6	2	●	1
Size up R0100T0100L041	1	2	1°	4	41	44.8	2.6°	70	6	2	●	1
R0100T0130	1	2	1° 30'	4	23	27.3	4.3°	60	6	2	●	1
R0100T0300	1	2	3°	4	41	41.5	2.8°	80	6	2	●	1
R0100T0500	1	2	5°	4	23	24.4	4.9°	60	6	2	●	1
Size up R0150T0100L031	1.5	3	1°	6	31	34.0	2.6°	60	6	2	●	1
Size up R0150T0100L041	1.5	3	1°	6	41	43.5	2.0°	70	6	2	●	1
Size up R0150T0100L051	1.5	3	1°	6	51	53.1	1.7°	80	6	2	●	1
R0150T0130	1.5	3	1° 30'	6	52	52.7	1.7°	90	6	2	●	1
R0150T0300	1.5	3	3°	6	32	32.6	2.8°	70	6	2	●	1
Size up R0200T0100L036	2	4	1°	8	36	37.5	1.6°	70	6	2	●	1
Size up R0200T0100L046	2	4	1°	8	46	47.0	1.3°	80	6	2	●	1
Size up R0200T0100L060	2	4	1°	8	60	60.3	1.0°	90	6	2	●	1
R0200T0130	2	4	1° 30'	8	49	—	1.2°	90	6	2	●	2
R0200T0300	2	4	3°	8	28	—	2.2°	70	6	2	●	2
Size up R0250T0100L036	2.5	5	1°	10	36	36.3	0.8°	80	6	2	●	1
Size up R0250T0100L065	2.5	5	1°	10	65	66.6	1.3°	110	8	2	●	1
R0250T0130	2.5	5	1° 30'	10	61	61.6	1.5°	110	8	2	●	1
R0250T0300	2.5	5	3°	10	41	—	2.2°	90	8	2	●	2
Size up R0300T0100L051	3	6	1°	12	51	52.0	1.2°	90	8	2	●	1
Size up R0300T0100L065	3	6	1°	12	65	65.3	0.9°	110	8	2	●	1
Size up R0300T0100L092	3	6	1°	12	92	93.9	1.3°	140	10	2	●	1
R0300T0130	3	6	1° 30'	12	53	—	1.1°	110	8	2	●	2
R0300T0300	3	6	3°	12	34	—	1.9°	90	8	2	●	2
Size up R0400T0100L068	4	8	1°	14	68	68.3	0.9°	120	10	2	●	1
Size up R0400T0100L092	4	8	1°	14	92	93.9	1.3°	140	12	2	●	1
Size up R0400T0130	4	8	1° 30'	14	55	—	1.1°	120	10	2	●	2
R0400T0300	4	8	3°	14	36	—	1.8°	100	10	2	●	2
Size up R0500T0100L070	5	10	1°	18	70	70.4	0.9°	130	12	2	●	1
Size up R0500T0100L100	5	10	1°	18	100	104.5	1.7°	160	16	2	●	1
R0500T0130	5	10	1° 30'	18	59	—	1.1°	130	12	2	●	2

● : Inventory maintained.

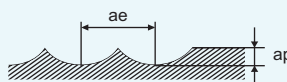


**VC-XB**

Ball Nose, 2 flute, Taper Neck

Work material				Alloy steel, Tool steel, Pre-hardened steel (-45HRC) AISI H13, AISI D2, NAK		Hardened steel (45-55HRC) AISI H13		
R (mm)	Neck taper half angle	Neck length (mm)	Depth of cut		Revolution (min <sup>-1</sup> )	Feed rate (mm/min)	Revolution (min <sup>-1</sup> )	Feed rate (mm/min)
			ap (mm)	ae (mm)				
<b>R0.5</b>	1°	16	0.02	<b>0.1</b>	22,000	530	12,000	230
	1°	21	0.01					
	1°	26	0.01					
	1° 30'	23	0.02					
	3°	42	0.05					
	5°	23	0.05					
<b>R1</b>	1°	21	0.05	<b>0.2</b>	18,000	570	10,000	260
	1°	31	0.04					
	1°	41	0.03					
	1° 30'	23	0.1					
	3°	41	0.1					
	5°	23	0.1					
<b>R2</b>	1°	36	0.2	<b>0.8</b>	14,000	670	6,000	200
	1°	46	0.15					
	1°	60	0.1					
	1° 30'	49	0.2					
	3°	28	0.2					
<b>R3</b>	1°	51	0.3	<b>1.2</b>	10,000	840	5,000	220
	1°	65	0.2					
	1°	92	0.1					
	1° 30'	53	0.3					
	3°	34	0.3					
<b>R4</b>	1° 30'	55	0.4	<b>1.6</b>	8,000	840	4,000	270
	3°	36	0.4					
<b>R5</b>	1°	70	0.4	<b>2</b>	6,000	840	3,000	310
	1°	100	0.3					
	1° 30'	59	0.5					
	3°	40	0.5					
<b>R6</b>	1°	70	0.6	<b>2.4</b>	5,000	900	2,500	340
	1°	100	0.4					
	1° 30'	83	0.6					
	3°	63	0.6					

Depth of cut



- 1) Please reduce the cutting depth (especially ap) if chattering and noise are generated.
- 2) When high machining accuracy is especially needed, we recommend reduce feed rate.
- 3) If the cutting depth is shallow, the revolution and feed rate can be increased.



JQA-2522  
JQA-EM0941

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