

**WXL涂层2刀球头铣刀型**  
WXL Coated-2 Flutes Ball Nose

**WXL-EBD**

切削条件 Cutting Conditions **P493**



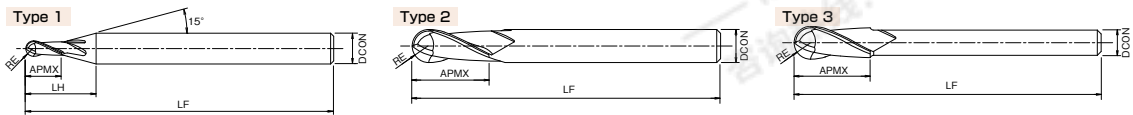
采用了硬质润滑被膜WXL涂层的高精度球头型铣刀。广泛对应多种加工材料，并发挥优异的效果。无论是干式、湿式加工都能实现长寿命。

Newly developed WXL coating with high hardness and high lubrication. Works on wide range of materials. Recommended with lubrications or dry milling.

CARBIDE WXL ±0.005 RE<3 0.003~-0.007 3≤RE≤6 6<RE ±0.01 FIT 30°

(单位:mm) (Unit:mm)

商品号 EDP No.	球半径 X 刃长 X 柄径 RE X APMX X DCON	全长 LF	刃长 APMX	LH	柄径 DCON	形状 Type	库存 Stock	重量 (g)
3105010	R0.05 X 0.2 X 4		0.2	6.5		1	●	13
3105020	R0.1 X 0.4 X 4	40	0.4	6.7			●	13
3105030	R0.15 X 0.6 X 4		0.6	6.7			●	13
3106030	R0.15 X 0.6 X 6	50	0.6	10.4	6		●	24
3105040	R0.2 X 0.8 X 4	40	0.8	7.2	4		●	13
3106040	R0.2 X 0.8 X 6	50	0.8	10.7	6		●	24
3105050	R0.25 X 1.1 X 4	40		7.1	4		●	13
3106050	R0.25 X 1.1 X 6	50		10.8	6		●	23
3105060	R0.3 X 1.1 X 4	40	1.1	6.9	4		●	12
3106060	R0.3 X 1.1 X 6	50	1.1	10.6	6		●	24
3106710	R0.35 X 1.5 X 4	40	1.5	8.2	4	1	●	10
3105080	R0.4 X 2 X 4		2	7.4			●	12
3106080	R0.4 X 2 X 6		2	11.1	6		●	23
3106720	R0.45 X 2.2 X 4	50	2.2	8.5			●	11
3105100	R0.5 X 1.5 X 4		1.5	6.7	4		●	14
3105101	R0.5 X 2.5 X 4		2.5	7.7			●	14
3106100	R0.5 X 2.5 X 6	60	2.5	11.5	6		●	29
3106730	R0.55 X 2.7 X 4		2.7	8.9			●	11
3105120	R0.6 X 3 X 4		3	7.9			●	14
3106740	R0.65 X 3.2 X 4	50	3.2	9.1	4		●	11
3105140	R0.7 X 3.5 X 4		3.5	8.1		●	14	
3105150	R0.75 X 2 X 4		2	6.4		●	14	
3105151	R0.75 X 4 X 4		4	8.4		●	14	



加工材料 Work Material	碳素钢 Carbon Steel	合金钢 Alloy Steel	预硬钢 Prehardened Steel	不锈钢 Stainless Steel	铸铁 Cast Iron	铜合金 Copper Alloy	铝合金 Aluminum Alloy	石墨 Graphite	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy	塑料 Plastic
商品记号 Abbreviation	预硬钢 Prehardened Steel	工具钢 Tool Steel	淬火钢 Hardened Steel		球墨铸铁 Ductile Cast Iron						
	~40HRC		~45HRC   ~55HRC   ~60HRC   ~65HRC	~35HRC	~350HB						
<b>WXL-EBD</b>	○	○	○	○	○	○	○		○	○	

**库存标识** Inventory symbols  
 ● = 标准库存品 standard stock item  
 ▲ = 由新产品及后续产品取代 (请确认库存) Scheduled to be replaced by new product or successor item  
 □ = 特定代理店库存品 Stocked by specific distributors. Contact us for price & availability.

球半径 RE 0.75~3.75 NEXT

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**WXL涂层2刃球头型铣刀**  
WXL Coated-2 Flutes Ball Nose

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Newly developed WXL coating with high hardness and high lubrication. Works on wide range of materials. Recommended with lubrications or dry milling.

<b>CARBIDE</b>	<b>WXL</b>	$\pm 0.005$	$0.003 \sim -0.007$	$\pm 0.01$	<b>SHRINK</b>	<b>FIT</b>	<b>30°</b>
		RE<3	3≤RE≤6	6<RE			

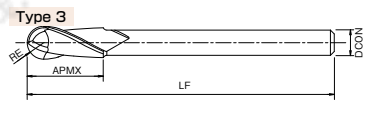
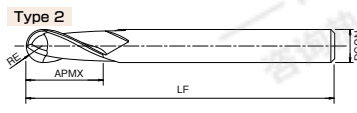
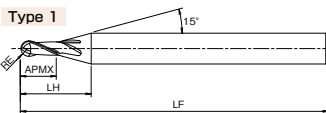
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FROM 球半径 RE **0.05~0.75** (单位:mm) (Unit:mm)

商品号 EDP No.	球径×刃长×柄径 RE×APMX×DCON	全长 LF	刃长 APMX	LH	柄径 DCON	形状 Type	库存 Stock	重量 (g)
3106150	R0.75×4 X 6	50	4	12.1	6	1	●	23
3105160	R0.8 X 4 X 4			8.2			●	14
3106750	R0.85×4.2 X 4		4.2	9.3			●	11
3106760	R0.9 X 4.5 X 4		4.5	9.4			●	11
3106770	R0.95×4.7 X 4		4.7				●	11
3105200	R1 X 3 X 4		3	7.1			●	14
3106200	R1 X 5 X 6		5	12.8	6		●	22
3105201	R1 X 6 X 4		6	10.1	4		●	14
3106780	R1.05×4.8 X 6		4.8	13.5			●	19
3106790	R1.1 X 4.9 X 6		4.9	13.4			●	19
3106800	R1.15×5 X 6	5	13.3		●	19		
3106810	R1.2 X 5.1 X 6	5.1	13.2		●	19		
3105250	R1.25×3 X 4	3	6.1		●	15		
3105251	R1.25×6 X 4	6	9.1		●	14		
3106250	R1.25×6 X 6	60	6	12.9	6	●	28	
3106820	R1.3 X 5.2 X 6	50	5.2			●	20	
3106830	R1.35×5.4 X 6		5.4	13.5	6	●	20	
3106840	R1.4 X 5.6 X 6		5.6			●	24	
3106850	R1.45×5.8 X 6		5.8			●	24	
3105300	R1.5 X 4.5 X 4	60	4.5	7.9	4	●	13	
3106300	R1.5 X 4.5 X 6			11.6		●	24	
3106301	R1.5 X 8 X 6		8	15.1	6	●	23	
3106350	R1.75×8 X 6	70	8	14.2		●	28	
3106400	R2 X 6 X 6		6	11.2		●	29	
3105400	R2 X 8 X 4	60	—	—	4	2	●	14
3106401	R2 X 8 X 6	70	8	13.2		●	28	
3106860	R2.25×8 X 6	80	8	13.6		●	32	
3106500	R2.5 X 8			11.4		●	33	
3106501	R2.5 X 10		10	13.4		●	32	
3106502	R2.5 X 12		12	15.4		●	32	
3106870	R2.75×10		10	13.7	6	●	33	
3106600	R3 X 10	90	—	—		2	●	41
3106601	R3 X 12			12	—		●	40
3106880	R3.25×13			13	—		●	41
3106610	R3.5 X 14		—	—		3	●	42
3106890	R3.75×14		14	—		●	42	

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球半径 RE **4~10** NEXT



商品记号 Abbreviation	加工材料 Work Material	碳素钢 Carbon Steel	合金钢 Alloy Steel	预硬钢 Prehardened Steel	不锈钢 Stainless Steel	铸铁 Cast Iron	铜合金 Copper Alloy	铝合金 Aluminum Alloy	石墨 Graphite	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy	塑料 Plastic
	预硬钢 Prehardened Steel	工具钢 Tool Steel	淬火钢 Hardened Steel	~40HRC	~45HRC ~55HRC ~60HRC ~65HRC	~35HRC	球墨铸铁 Ductile Cast Iron	~350HB				
<b>WXL-EBD</b>		○	○	○	○	○	○	○		○	○	

**库存标识** Inventory symbols

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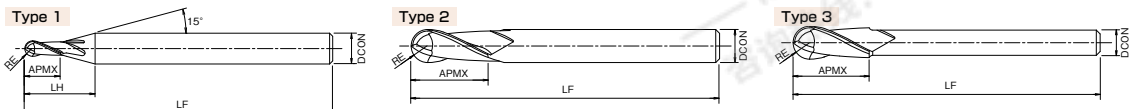
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FROM 球半径 RE 0.75~3.75 (单位:mm) (Unit:mm)

商品号 EDP No.	球半径 x 刃长 x 柄径 RE x APMX x DCON	全长 LF	刃长 APMX	LH	柄径 DCON	形状 Type	库存 Stock	重量 (g)
3106620	R4 X12	100	12	—	8	2	●	74
3106621	R4 X14		14	—			●	74
3106900	R4.25 X16		16	—		●	74	
3106630	R4.5 X18		18	—		3	●	78
3106910	R4.75 X18		18	—			●	79
3106640	R5 X15		15	—		2	●	113
3106641	R5 X18	18	—	●	113			
3106650	R5.5 X22	22	—	3	●	114		
3106660	R6 X18	18	—		●	175		
3106661	R6 X22	22	—	2	●	175		
3106920	R6.5 X24	24	—		12	●	174	
3106670	R7 X26	26	—	3		●	190	
3106930	R7.5 X28	28	—		●	192		
3106680	R8 X30	140	30	—	16	2	●	400
3106690	R9 X34		34	—			●	407
3106700	R10 X38	160	38	—	20	2	●	681



加工材料 Work Material	碳素钢 Carbon Steel	合金钢 Alloy Steel	预硬钢 Prehardened Steel	不锈钢 Stainless Steel	铸铁 Cast Iron	铜合金 Copper Alloy	铝合金 Aluminum Alloy	石墨 Graphite	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy	塑料 Plastic
商品记号 Abbreviation	预硬钢 Prehardened Steel	工具钢 Tool Steel	淬火钢 Hardened Steel	~40HRC	~45HRC ~55HRC ~60HRC ~65HRC	~35HRC	~350HB				
<b>WXL-EBD</b>	○	○	○	○	○	○	○		○	○	

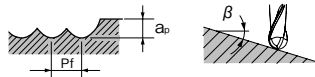
**库存标识** Inventory symbols  
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# 硬质合金铣刀切削条件基准表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXL 2刃球头型 WXL-EBD 标准铣削

## WXL 2 FLUTES BALL-END REGULAR MILLING

加工材料 Work Material	铜 · 铜合金 Copper · Copper Alloy				一般构造用钢 · 碳素钢 Mild Steel · Carbon Steel · FC250 · S5400 · S55C ~ 32HRC				调质钢 · 预硬钢 · 不锈钢 Hardened Steel · Prehardened Steel · Stainless Steel SKT · SKD61 · NAK80 · HPM1 · DH** · SUS304							
	33 ~ 41HRC		42 ~ 50HRC		33 ~ 41HRC		42 ~ 50HRC		33 ~ 41HRC		42 ~ 50HRC		33 ~ 41HRC		42 ~ 50HRC	
	转速 Speed (min <sup>-1</sup> )	进给速度 Feed (mm/min)	切深量(mm) Depth of Cut		转速 Speed (min <sup>-1</sup> )	进给速度 Feed (mm/min)	切深量(mm) Depth of Cut		转速 Speed (min <sup>-1</sup> )	进给速度 Feed (mm/min)	切深量(mm) Depth of Cut		转速 Speed (min <sup>-1</sup> )	进给速度 Feed (mm/min)	切深量(mm) Depth of Cut	
0.05	40,000	150	0.003	0.005	32,000	75	0.005	0.005	32,000	50	0.005	0.005	32,000	35	0.005	0.005
0.1	40,000	300	0.01	0.02	32,000	200	0.01	0.01	32,000	200	0.01	0.01	32,000	200	0.005	0.005
0.2	40,000	490	0.02	0.08	32,000	410	0.02	0.08	32,000	330	0.02	0.08	32,000	205	0.02	0.04
0.3	40,000	580	0.03	0.12	32,000	490	0.03	0.12	32,000	420	0.03	0.12	32,000	265	0.03	0.06
0.4	40,000	660	0.04	0.16	32,000	550	0.04	0.16	31,500	420	0.04	0.16	27,500	290	0.04	0.08
0.5	32,000	750	0.05	0.2	31,500	620	0.05	0.2	25,000	400	0.05	0.2	22,000	285	0.05	0.1
1	19,000	750	0.2	0.4	15,500	620	0.2	0.4	12,500	400	0.2	0.4	11,000	290	0.1	0.2
1.5	12,500	760	0.3	0.6	10,500	630	0.3	0.6	8,450	405	0.3	0.6	7,400	290	0.15	0.3
2	9,500	760	0.4	0.8	7,950	630	0.4	0.8	6,350	445	0.4	0.8	5,550	370	0.2	0.4
3	6,300	800	0.6	1.2	5,300	670	0.6	1.2	4,200	465	0.6	1.2	3,700	390	0.3	0.6
4	4,750	950	0.8	1.6	3,950	790	0.8	1.6	3,150	555	0.8	1.6	2,750	455	0.4	0.8
5	3,800	890	1	2	3,150	745	1	2	2,500	525	1	2	2,200	430	0.5	1
6	3,170	840	1.2	2.4	2,650	700	1.2	2.4	2,100	490	1.2	2.4	1,850	430	0.6	1.2
8	2,400	630	1.6	3.2	1,990	525	1.6	3.2	1,580	370	1.6	3.2	1,390	325	0.8	1.6
10	1,900	500	2	4	1,590	420	2	4	1,260	290	2	4	1,110	260	1	2



1. 请使用刚性较高的机床和刀柄。
  2. 请使用适合工件材料发烟性少的切削油剂，通常推荐气冷。
  3. 上表直径为参考。实际加工中请根据实际状况参考上表。
- ※当悬长较长时，请降低转速和进给速度。  
※倾斜角β低于15°时可得上表的转速和进给速度提高1.2~1.5倍。

1. Use a rigid and precise machine and holder.
  2. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
  3. Refer to the table above to set the milling conditions in accordance with the actual situation.
- ※ When the length of tool extension from the machine is long, reduce the speed and feed.  
※ When β is less than 15°, speed and feed in the above table can be increased 1.5 ~ 2 times.

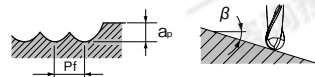
## WXL 2刃球头型 WXL-EBD 高速铣削

## WXL 2 FLUTES BALL-END HIGH-SPEED LIGHT MILLING

⚠ 加工时产生的火花以及破损造成的发热现象有导致火灾的危险。  
请做好防火措施。

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.

加工材料 Work Material	铜 · 铜合金 Copper · Copper Alloy				一般构造用钢 · 碳素钢 Mild Steel · Carbon Steel · FC250 · S5400 · S55C ~ 32HRC				调质钢 · 预硬钢 Hardened Steel · Prehardened Steel SKT · SKD61 · NAK55 · NAK80 · HPM1 · DH**							
	33 ~ 41HRC		42 ~ 50HRC		33 ~ 41HRC		42 ~ 50HRC		33 ~ 41HRC		42 ~ 50HRC		33 ~ 41HRC		42 ~ 50HRC	
	转速 Speed (min <sup>-1</sup> )	进给速度 Feed (mm/min)	切深量(mm) Depth of Cut		转速 Speed (min <sup>-1</sup> )	进给速度 Feed (mm/min)	切深量(mm) Depth of Cut		转速 Speed (min <sup>-1</sup> )	进给速度 Feed (mm/min)	切深量(mm) Depth of Cut		转速 Speed (min <sup>-1</sup> )	进给速度 Feed (mm/min)	切深量(mm) Depth of Cut	
0.5	50,000	3,350	0.02	0.05	50,000	2,800	0.02	0.05	50,000	2,500	0.02	0.05	47,500	2,250	0.02	0.05
1	31,500	3,350	0.04	0.1	25,000	2,800	0.04	0.1	24,500	2,500	0.04	0.1	23,500	2,250	0.04	0.1
1.5	21,000	3,350	0.06	0.15	16,500	2,800	0.06	0.15	16,000	2,500	0.06	0.15	15,500	2,250	0.06	0.15
2	15,000	4,080	0.08	0.2	15,500	3,400	0.08	0.2	15,000	2,750	0.08	0.2	13,500	2,450	0.08	0.2
3	10,500	5,160	0.12	0.3	13,500	4,300	0.3	0.6	11,500	2,750	0.3	0.6	9,500	2,250	0.12	0.3
4	7,900	3,840	0.16	0.4	10,000	3,200	0.4	0.8	8,950	2,100	0.4	0.8	7,150	1,700	0.16	0.4
5	6,300	3,120	0.2	0.5	8,250	2,600	0.5	1	7,150	1,700	0.5	1	5,700	1,350	0.2	0.5
6	5,250	2,580	0.24	0.6	6,850	2,150	0.5	2.4	5,950	1,400	0.5	2.4	4,750	1,100	0.24	0.6
8	4,950	1,550	0.32	0.8	4,110	1,290	0.5	3.2	4,460	1,050	0.5	3.2	3,560	820	0.32	0.8
10	3,950	1,240	0.4	1	3,290	1,030	0.5	4	3,570	840	0.5	4	2,850	660	0.32	1



1. 此基准条件表适用于使用高速高精度的数控加工中心进行轻切削。
  2. 加工时会有火花产生，请勿使用发火性切削油剂。
  3. 请使用适合工件材料发烟性少的切削油剂，通常推荐气冷。
  4. 上表直径为参考。实际加工中请根据实际状况参考上表。
- ※倾斜角β低于15°时可得上表的转速和进给速度提高1.2~1.5倍。

1. The indicated speeds and feeds are for high speed light milling with high speed/high precision machining centers.
  2. Because tools can cause sparks, do not use flammable fluids.
  3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
  4. Refer to the table above to set the milling conditions in accordance with the actual situation.
- ※ When β is less than 15°, speed and feed in the above table can be increased 1.2 ~ 1.5 times.