NS TOOL

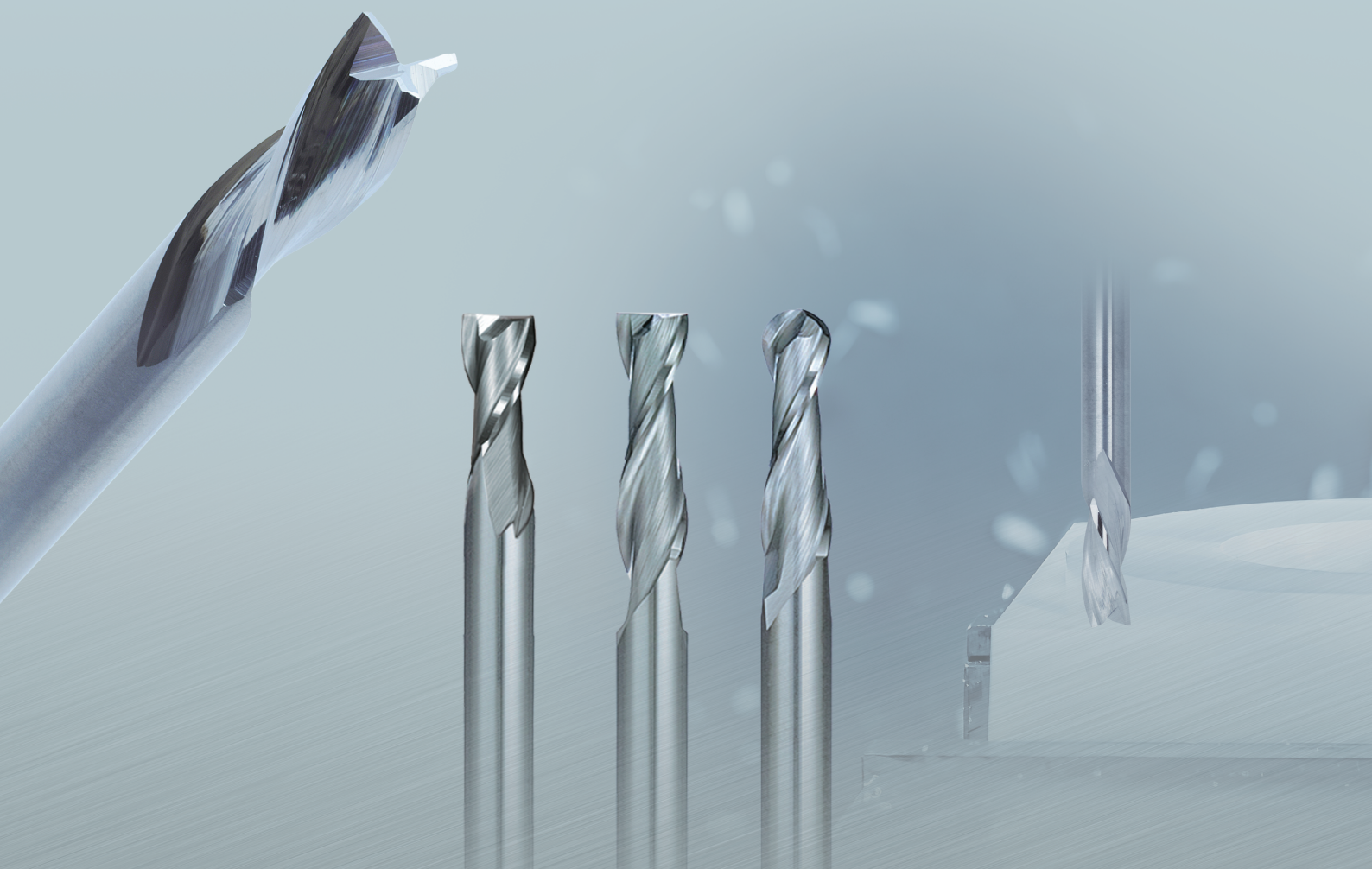
For Crafting Tomorrow

End Mill Series for Resin

RSE325LH NEW Release in Dec, 2025.

RSES230 RSE230 RSB230

O



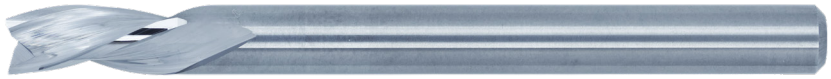
Right-hand cutting, left-hand helix design suppresses top burr formation
Specialized cutting edge shape for Resin improve machining surface accuracy

3-Flute Left-Hand Helix, Right-Hand Cut Square End Mill
for Burr Reduction in Resin Machining

RSE325LH

New Release in Dec, 2025.

ϕ 1 ～ ϕ 6　　Total 6 sizes

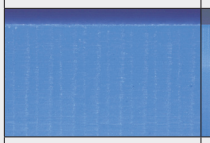
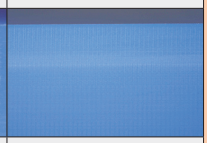


Features

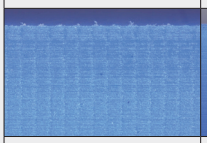
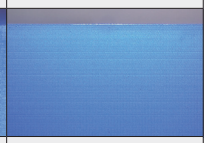
Feature 1	Burr suppression	Sharp cutting edge design with Left-hand helix

■ Comparison of burr height and machining surface with conventional product

Work material：MC nylon　Coolant： Air blow

RSE325LH	Top	Side
		
	Burr height	Surface Roughness
	0.008 mm	**Ra:0.74 μm Rz:4.17 μm**

Process	**Finishing**
Tool	**RSE325LH ϕ6 × 12**
Spindle speed [min^{-1}]	**3,000**
Feed [mm/min]	**1,050**
Depth of cut ap × ae [mm]	**12 × 0.1**
Feed per tooth [mm/tooth]	**0.117**

Conventional 2-flute square end mill	Top	Side
		
	Burr height	Surface Roughness
	0.027 mm	Ra:0.82 μm Rz:6.99 μm

Process	Finishing
Tool	Conventional 2-flute square end mill ϕ6 × 12
Spindle speed [min^{-1}]	3,000
Feed [mm/min]	700
Depth of cut ap × ae [mm]	12 × 0.1
Feed per tooth [mm/tooth]	0.117

RSE325LH New

Size ϕ1 ～ ϕ6

MG

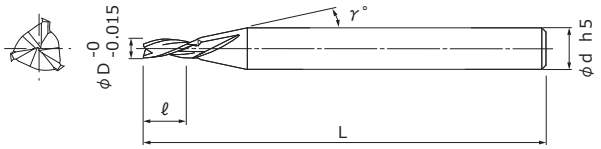
3-Flute Left-Hand Helix, Right-Hand Cut Square End Mill for Burr Reduction in Resin Machining

Total 6 sizes

Right-hand cutting, left-hand helix design suppresses top burr formation
Specialized cutting edge shape for Resin improve machining surface accuracy







- Right-hand cutting, left-hand helix design tool that suppresses upper-surface burrs for side finishing operations.
- Specialized cutting edge shape for resin improve machining surface accuracy.

◆※Release in Dec, 2025.

Unit [Size : mm]

Code No.	Dia. (D)	Length of Cut (ℓ)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)
◆ 01-00649-01020	**1**	2	12°	4	55
◆ 01-00649-02040	**2**	4	12°	4	55
◆ 01-00649-03060	**3**	6	12°	6	65
◆ 01-00649-04080	**4**	8	12°	6	65
◆ 01-00649-05100	**5**	10	12°	6	70
◆ 01-00649-06120	**6**	12	-	6	70

How to Order When you order, indicate RSE325LH (D). ※ (γ) is reference value.

Recommended Milling Conditions

Work Material		ABS・MC・PTFE・POM・PEEK・ABS・MC nylon・PTFE・Polycarbonate・POM・PEEK・Acrylic・Bakelite				
Dia.	Length of Cut	Spindle Speed	Feed	Depth of Cut		Stock before using this tool
		min^{-1}	mm/min	a_p mm	a_e mm	mm
1	**2**	17,000	2,200	2	0.04	0.04
2	**4**	9,000	1,800	4	0.08	0.08
3	**6**	6,200	1,600	6	0.12	0.12
4	**8**	4,800	1,500	8	0.16	0.16
5	**10**	3,900	1,450	10	0.2	0.2
6	**12**	3,300	1,400	12	0.2	0.2

Notes

※1 These cutting conditions are reference values for side finishing.Please adjust the spindle speed and feed rate according to the required surface roughness.
※2 Depth of Cut: ap=Axial Depth of Cut / ae=Radial Depth of Cut.
※3 Adjust milling condition conforming with machine rigidity and clamping condition.
※3 Final milling conditions are subject to machining profile, purpose and machine status.
※4 Reduce both spindle speed and feed at same rate for chattering and also for insufficient spindle speed of a machine.
※5 If the cutting load is high at corners, etc., set the milling conditions and tool path carefully to reduce the cutting load.
※6 Air blow is recommended.
※7 The stock allowance for this tool is a guideline,please adjust it according to the machining condition of the previous process and the required accuracy.

Sharp cutting edge shape with high cutting performance realizes good machined surface

End Mill Series for Resin

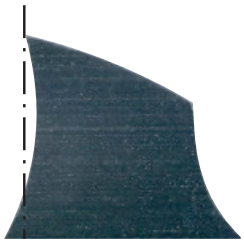
Lineup

4 models. Lineup of 359 sizes are available for a variety of machining shapes

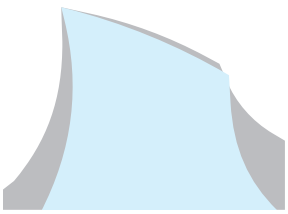
Model	Photo	Length of cut	Maximum machining depth	Size	Number of flute
Square					
New **RSE325LH**		2D	2D	Total 6 sizes	3
Right-hand cutting,Left-hand helix design suppresses top burr formation Specialized cutting edge shape for resin improves machining surface accuracy					
Square / Long Neck Square					
RSES230		1.5D	40D	Total 109 sizes	2
Short cutting length type with high rigidity					
RSE230		3D ～ 10D	40D	Total 135 sizes	2
Maximum depth of cut is 40D with long neck type					
Ball / Long Neck Ball					
RSB230		3D ～ 10D	40D	Total 63 sizes	2
Maximum depth of cut is 40D with long neck type					

Cutting edge shape

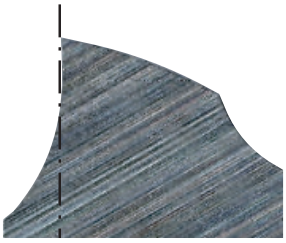
Adoption of sharper cutting edge to realize high precision machining by suppressing burr and deflection



End Mill Series for Resin



Comparison with general cutting edge



General cutting edge

Resin Milling



RSES230

Size ϕ0.1 ～ ϕ6

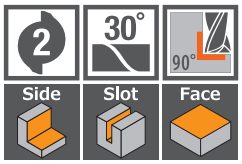
MG

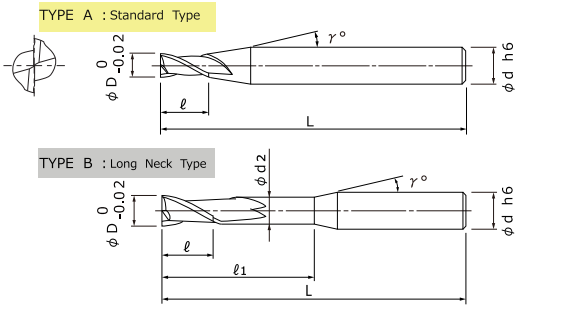
Short Flute End Mill for Resin

Total 109 sizes

Square end mill for resin
High rigidity with short length of cut







- Applicable to nonferrous material such as Aluminium and Copper.
- Eliminate the conventional problem of the long flute length.

Unit [Size : mm]

Code No.	Dia.(D)	Length of Cut (ℓ)	Under Neck Length (ℓ1)	Type	Neck Dia. (d2)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)
01-00640-01000	0.1	0.15	-	A	-	9°	4	50
01-00640-01003			0.3	B	0.085	12°	4	50
01-00640-01005			0.5		0.085	12°	4	50
01-00640-01008			0.8		0.085	12°	4	50
01-00640-01010			1		0.085	12°	4	50
01-00640-01500	0.15	0.23	-	A	-	9°	4	50
01-00640-01505			0.5	B	0.13	12°	4	50
01-00640-01508			0.8		0.13	12°	4	50
01-00640-01510			1		0.13	12°	4	50
01-00640-01515			1.5		0.13	12°	4	50
01-00640-02000	0.2	0.3	-	A	-	9°	4	50
01-00640-02006			0.6	B	0.18	12°	4	50
01-00640-02010			1		0.18	12°	4	50
01-00640-02015			1.5		0.18	12°	4	50
01-00640-02020			2		0.18	12°	4	50
01-00640-03000	0.3	0.45	-	A	-	9°	4	50
01-00640-03010			1	B	0.28	12°	4	50
01-00640-03015			1.5		0.28	12°	4	50
01-00640-03020			2		0.28	12°	4	50
01-00640-03025			2.5		0.28	12°	4	50
01-00640-03030			3		0.28	12°	4	50

How to Order When you order, indicate RSES230 (D)×(ℓ) [×(ℓ ₁)]. Choose Shank Dia. (d) for TypeA of Dia. 4. ※ (γ) is reference value.

Unit [Size : mm]

Code No.	Dia.(D)	Length of Cut (ℓ)	Under Neck Length (ℓ1)	Type	Neck Dia. (d2)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)
01-00640-04000	0.4	0.6	-	A	-	9°	4	60
01-00640-04015			1.5	B	0.37	12°	4	60
01-00640-04020			2		0.37	12°	4	60
01-00640-04025			2.5		0.37	12°	4	60
01-00640-04030			3		0.37	12°	4	60
01-00640-04035			3.5		0.37	12°	4	60
01-00640-04040			4		0.37	12°	4	60
01-00640-05000	0.5	0.75	-	A	-	9°	4	60
01-00640-05020			2	B	0.46	12°	4	60
01-00640-05030			3		0.46	12°	4	60
01-00640-05040			4		0.46	12°	4	60
01-00640-05060			6		0.46	12°	4	60
01-00640-05080			8		0.46	12°	4	60
01-00640-05100			10		0.46	12°	4	60
01-00640-05120			12		0.46	12°	4	60
01-00640-06000	0.6	0.9	-	A	-	9°	4	60
01-00640-06030			3	B	0.56	12°	4	60
01-00640-06040			4		0.56	12°	4	60
01-00640-06060			6		0.56	12°	4	60
01-00640-06080			8		0.56	12°	4	60
01-00640-06100			10		0.56	12°	4	60
01-00640-07000	0.7	1.05	-	A	-	9°	4	60
01-00640-07040			4	B	0.66	12°	4	60
01-00640-07060			6		0.66	12°	4	60
01-00640-08000	0.8	1.2	-	A	-	9°	4	60
01-00640-08040			4	B	0.76	12°	4	60
01-00640-08060			6		0.76	12°	4	60
01-00640-08080			8		0.76	12°	4	60
01-00640-08100			10		0.76	12°	4	60
01-00640-08120			12		0.76	12°	4	60
01-00640-08140			14		0.76	12°	4	60
01-00640-08160			16		0.76	12°	4	60
01-00640-09000	0.9	1.35	-	A	-	9°	4	60
01-00640-09060			6	B	0.86	12°	4	60
01-00640-09080			8		0.86	12°	4	60
01-00640-10000	1	1.5	-	A	-	9°	4	70
01-00640-10040			4	B	0.95	12°	4	70
01-00640-10060			6		0.95	12°	4	70
01-00640-10080			8		0.95	12°	4	70
01-00640-10100			10		0.95	12°	4	70
01-00640-10120			12		0.95	12°	4	70
01-00640-10140			14		0.95	12°	4	70
01-00640-10150			15		0.95	12°	4	70
01-00640-10180			18		0.95	12°	4	70
01-00640-10200			20		0.95	12°	4	70
01-00640-15000	1.5	2.25	-	A	-	9°	4	70
01-00640-15060			6	B	1.45	12°	4	70
01-00640-15080			8		1.45	12°	4	70
01-00640-15100			10		1.45	12°	4	70
01-00640-15120			12		1.45	12°	4	70
01-00640-15150			15		1.45	12°	4	70
01-00640-15180			18		1.45	12°	4	70
01-00640-15200			20		1.45	12°	4	70
01-00640-15230			23		1.45	12°	4	70
01-00640-15250			25		1.45	12°	4	70
01-00640-15300			30		1.45	12°	4	70

RSES230

Short Flute End Mill for Resin

Unit [Size : mm]

Code No.	Dia. (D)	Length of Cut (ℓ)	Under Neck Length (ℓ1)	Type	Neck Dia. (d2)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)
01-00640-20000	2	3	-	A	-	9°	4	60
01-00640-20060			6	B	1.94	12°	4	60
01-00640-20080			8		1.94	12°	4	60
01-00640-20100			10		1.94	12°	4	60
01-00640-20120			12		1.94	12°	4	60
01-00640-20150			15		1.94	12°	4	60
01-00640-20200			20		1.94	12°	4	80
01-00640-20240			24		1.94	12°	4	80
01-00640-20300			30		1.94	12°	4	80
01-00640-20400			40		1.94	12°	4	100
01-00640-30000	3	4.5	-	A	-	-	3	80
01-00640-30100			10	B	2.85	12°	6	80
01-00640-30120			12		2.85	12°	6	80
01-00640-30150			15		2.85	12°	6	80
01-00640-30200			20		2.85	12°	6	80
01-00640-30240			24		2.85	12°	6	80
01-00640-30300			30		2.85	12°	6	80
01-00640-30360			36		2.85	12°	6	80
01-00640-40000	4	6	-	A	-	-	4	80
01-00640-40001			-		-	9°	6	80
01-00640-40100			10	B	3.8	12°	6	80
01-00640-40150			15		3.8	12°	6	80
01-00640-40200			20		3.8	12°	6	80
01-00640-40300			30		3.8	12°	6	80
01-00640-40400			40		3.8	12°	6	100
01-00640-50000	5	7.5	-	A	-	9°	6	80
01-00640-50300			30	B	4.8	12°	6	80
01-00640-50400			40		4.8	12°	6	100
01-00640-60000	6	9	-	A	-	-	6	90
01-00640-60400			40	B	5.8	-	6	90
01-00640-60600			60		5.8	-	6	120
01-00640-60800			80		5.8	-	6	150

How to Order When you order, indicate RSES230 (D)×(ℓ) [×(ℓ_1)]. Choose Shank Dia. (d) for TypeA of Dia. 4. ※ (γ) is reference value.

Work Material				ABS・MC nylon・PTFE						Polycarbonate・POM・PEEK						Acrylic・Bakelite					
Dia.	Length of Cut	Under Neck Length	L/D	Spindle Speed	Feed		Depth of Cut			Spindle Speed	Feed		Depth of Cut			Spindle Speed	Feed		Depth of Cut		
					Side Milling	Slot-ting	Side Milling		Slot-ting		Side Milling	Slot-ting	Side Milling		Slot-ting		Side Milling	Slot-ting	Side Milling		Slot-ting
				min^{-1}	mm/min		a_p mm	a_e mm	a_p mm	min^{-1}	mm/min		a_p mm	a_e mm	a_p mm	min^{-1}	mm/min		a_p mm	a_e mm	a_p mm
0.1	**0.15**	**-**	**1.5**	20,000	190	90	0.15	0.02	0.1	20,000	160	80	0.15	0.02	0.1	20,000	120	60	0.15	0.02	0.1
		0.3	**3**	20,000	190	90	0.15	0.02	0.1	20,000	160	80	0.15	0.02	0.1	20,000	120	60	0.15	0.02	0.1
		0.5	**5**	19,000	150	70	0.15	0.01	0.05	19,000	120	60	0.15	0.01	0.05	19,000	100	50	0.15	0.01	0.05
		0.8	**8**	17,000	120	60	0.15	0.005	0.025	17,000	100	50	0.15	0.005	0.025	17,000	80	40	0.15	0.005	0.025
		1	**10**	15,600	80	40	0.15	0.003	0.012	15,600	60	30	0.15	0.003	0.012	15,600	50	20	0.15	0.003	0.012
0.15	**0.23**	**-**	**1.5**	20,000	400	200	0.22	0.03	0.15	20,000	340	170	0.22	0.03	0.15	20,000	270	130	0.22	0.03	0.15
		0.5	**3.3**	19,800	390	190	0.22	0.028	0.13	19,800	320	160	0.22	0.028	0.13	19,800	260	130	0.22	0.028	0.13
		0.8	**5.3**	18,700	320	160	0.22	0.015	0.071	18,700	260	130	0.22	0.015	0.071	18,700	210	100	0.22	0.015	0.071
		1	**6.7**	17,800	280	140	0.22	0.011	0.055	17,800	240	120	0.22	0.011	0.055	17,800	190	90	0.22	0.011	0.055
		1.5	**10**	15,600	170	80	0.22	0.004	0.018	15,600	140	70	0.22	0.004	0.018	15,600	110	50	0.22	0.004	0.018
0.2	**0.3**	**-**	**1.5**	20,000	620	310	0.3	0.04	0.2	20,000	520	260	0.3	0.04	0.2	20,000	410	200	0.3	0.04	0.2
		0.6	**3**	20,000	620	310	0.3	0.04	0.2	20,000	520	260	0.3	0.04	0.2	20,000	410	200	0.3	0.04	0.2
		1	**5**	19,000	500	250	0.3	0.02	0.1	19,000	410	200	0.3	0.02	0.1	19,000	330	160	0.3	0.02	0.1
		1.5	**7.5**	17,300	410	200	0.3	0.012	0.059	17,300	340	170	0.3	0.012	0.059	17,300	270	130	0.3	0.012	0.059
		2	**10**	15,600	260	130	0.3	0.005	0.024	15,600	220	110	0.3	0.005	0.024	15,600	170	80	0.3	0.005	0.024
0.3	**0.45**	**-**	**1.5**	20,000	1,050	520	0.45	0.06	0.3	20,000	880	440	0.45	0.06	0.3	20,000	700	350	0.45	0.06	0.3
		1	**3.3**	19,800	1,020	510	0.45	0.055	0.27	19,800	850	420	0.45	0.055	0.27	19,800	680	340	0.45	0.055	0.27
		1.5	**5**	19,000	850	420	0.45	0.03	0.15	19,000	710	350	0.45	0.03	0.15	19,000	560	280	0.45	0.03	0.15
		2	**6.7**	17,800	750	370	0.45	0.022	0.1	17,800	620	310	0.45	0.022	0.1	17,800	500	250	0.45	0.022	0.1
		2.5	**8.3**	16,700	630	310	0.45	0.014	0.069	16,700	520	260	0.45	0.014	0.069	16,700	420	210	0.45	0.014	0.069
		3	**10**	15,600	450	220	0.45	0.008	0.036	15,600	370	180	0.45	0.008	0.036	15,600	300	150	0.45	0.008	0.036
0.4	**0.6**	**-**	**1.5**	20,000	1,480	740	0.6	0.08	0.4	20,000	1,240	620	0.6	0.08	0.4	20,000	990	490	0.6	0.08	0.4
		1.5	**3.8**	19,600	1,370	680	0.6	0.065	0.32	19,600	1,140	570	0.6	0.065	0.32	19,600	910	450	0.6	0.065	0.32
		2	**5**	19,000	1,200	600	0.6	0.04	0.2	19,000	1,000	500	0.6	0.04	0.2	19,000	800	400	0.6	0.04	0.2
		2.5	**6.3**	18,100	1,090	540	0.6	0.032	0.15	18,100	910	450	0.6	0.032	0.15	18,100	720	360	0.6	0.032	0.15
		3	**7.5**	17,300	980	490	0.6	0.024	0.11	17,300	820	410	0.6	0.024	0.11	17,300	650	320	0.6	0.024	0.11
		3.5	**8.8**	16,400	820	410	0.6	0.017	0.081	16,400	680	340	0.6	0.017	0.081	16,400	550	270	0.6	0.017	0.081
		4	**10**	15,600	630	310	0.6	0.01	0.048	15,600	530	260	0.6	0.01	0.048	15,600	420	210	0.6	0.01	0.048
0.5	**0.75**	**-**	**1.5**	20,000	1,920	960	0.75	0.1	0.5	20,000	1,600	800	0.75	0.1	0.5	20,000	1,280	640	0.75	0.1	0.5
		2	**4**	19,500	1,730	860	0.75	0.075	0.37	19,500	1,440	720	0.75	0.075	0.37	19,500	1,150	570	0.75	0.075	0.37
		3	**6**	18,300	1,430	710	0.75	0.042	0.2	18,300	1,190	590	0.75	0.042	0.2	18,300	950	470	0.75	0.042	0.2
		4	**8**	17,000	1,220	610	0.75	0.025	0.12	17,000	1,020	510	0.75	0.025	0.12	17,000	810	400	0.75	0.025	0.12
		6	**12**	15,100	740	370	0.75	0.011	0.052	15,100	610	300	0.75	0.011	0.052	15,100	490	240	0.75	0.011	0.052
		8	**16**	14,300	590	290	0.75	0.008	0.036	14,300	490	240	0.75	0.008	0.036	14,300	390	190	0.75	0.008	0.036
		10	**20**	13,500	450	220	0.75	0.004	0.02	13,500	370	180	0.75	0.004	0.02	13,500	300	150	0.75	0.004	0.02
0.6	**0.9**	**-**	**1.5**	20,000	2,160	1,080	0.9	0.12	0.6	20,000	1,800	900	0.9	0.12	0.6	20,000	1,440	720	0.9	0.12	0.6
		3	**5**	19,000	1,740	870	0.9	0.06	0.3	19,000	1,450	720	0.9	0.06	0.3	19,000	1,160	580	0.9	0.06	0.3
		4	**6.7**	17,800	1,530	760	0.9	0.044	0.21	17,800	1,270	630	0.9	0.044	0.21	17,800	1,020	510	0.9	0.044	0.21
		6	**10**	15,000	890	440	0.9	0.015	0.072	15,000	740	370	0.9	0.015	0.072	15,000	590	290	0.9	0.015	0.072
		8	**13.3**	14,400	750	370	0.9	0.012	0.056	14,400	620	310	0.9	0.012	0.056	14,400	500	250	0.9	0.012	0.056
		10	**16.7**	13,700	610	300	0.9	0.008	0.04	13,700	510	250	0.9	0.008	0.04	13,700	410	200	0.9	0.008	0.04
0.7	**1.05**	**-**	**1.5**	20,000	2,400	1,200	1.05	0.14	0.7	20,000	2,000	1,000	1.05	0.14	0.7	20,000	1,600	800	1.05	0.14	0.7
		4	**5.7**	18,500	1,830	910	1.05	0.062	0.3	18,500	1,530	760	1.05	0.062	0.3	18,500	1,220	610	1.05	0.062	0.3
		6	**8.6**	14,500	1,200	600	1.05	0.03	0.14	14,500	1,000	500	1.05	0.03	0.14	14,500	800	400	1.05	0.03	0.14

RSES230

Recommended Milling Conditions

Work Material				ABS・MC nylon・PTFE						Polycarbonate・POM・PEEK						Acrylic・Bakelite					
Dia.	Length of Cut	Under Neck Length	L/D	Spindle Speed	Feed		Depth of Cut			Spindle Speed	Feed		Depth of Cut			Spindle Speed	Feed		Depth of Cut		
					Side Milling	Slot-ting	Side Milling		Slot-ting		Side Milling	Slot-ting	Side Milling		Slot-ting		Side Milling	Slot-ting	Side Milling		Slot-ting
				min^{-1}	mm/min		a_p mm	a_e mm	a_p mm	min^{-1}	mm/min		a_p mm	a_e mm	a_p mm	min^{-1}	mm/min		a_p mm	a_e mm	a_p mm
0.8	1.2	-	1.5	20,000	2,640	1,320	1.2	0.16	0.8	20,000	2,200	1,100	1.2	0.16	0.8	20,000	1,760	880	1.2	0.16	0.8
		4	5	19,000	2,130	1,060	1.2	0.08	0.4	19,000	1,770	880	1.2	0.08	0.4	19,000	1,420	710	1.2	0.08	0.4
		6	7.5	17,300	1,750	870	1.2	0.047	0.23	17,300	1,460	730	1.2	0.047	0.23	17,300	1,160	580	1.2	0.047	0.23
		8	10	14,000	1,010	500	1.2	0.02	0.096	14,000	840	420	1.2	0.02	0.096	14,000	670	330	1.2	0.02	0.096
		10	12.5	13,400	880	440	1.2	0.016	0.08	13,400	730	360	1.2	0.016	0.08	13,400	580	290	1.2	0.016	0.08
		12	15	12,700	750	370	1.2	0.013	0.064	12,700	620	310	1.2	0.013	0.064	12,700	500	250	1.2	0.013	0.064
		14	17.5	12,300	640	320	1.2	0.01	0.048	12,300	540	270	1.2	0.01	0.048	12,300	430	210	1.2	0.01	0.048
		16	20	12,000	550	270	1.2	0.007	0.032	12,000	460	230	1.2	0.007	0.032	12,000	360	180	1.2	0.007	0.032
0.9	1.35	-	1.5	18,500	2,660	1,330	1.35	0.18	0.9	18,500	2,220	1,110	1.35	0.18	0.9	18,500	1,770	880	1.35	0.18	0.9
		6	6.7	16,500	1,890	940	1.35	0.065	0.32	16,500	1,570	780	1.35	0.065	0.32	16,500	1,260	630	1.35	0.065	0.32
		8	8.9	13,500	1,280	640	1.35	0.035	0.17	13,500	1,070	530	1.35	0.035	0.17	13,500	850	420	1.35	0.035	0.17
1	1.5	-	1.5	17,000	2,650	1,320	1.5	0.2	1	17,000	2,210	1,100	1.5	0.2	1	17,000	1,760	880	1.5	0.2	1
		4	4	16,500	2,390	1,190	1.5	0.15	0.75	16,500	1,990	990	1.5	0.15	0.75	16,500	1,590	790	1.5	0.15	0.75
		6	6	15,500	1,980	990	1.5	0.084	0.41	15,500	1,650	820	1.5	0.084	0.41	15,500	1,320	660	1.5	0.084	0.41
		8	8	14,400	1,690	840	1.5	0.05	0.25	14,400	1,400	700	1.5	0.05	0.25	14,400	1,120	560	1.5	0.05	0.25
		10	10	13,000	1,110	550	1.5	0.024	0.12	13,000	920	460	1.5	0.024	0.12	13,000	740	370	1.5	0.024	0.12
		12	12	12,400	980	490	1.5	0.021	0.1	12,400	820	410	1.5	0.021	0.1	12,400	650	320	1.5	0.021	0.1
		14	14	12,000	870	430	1.5	0.018	0.088	12,000	730	360	1.5	0.018	0.088	12,000	580	290	1.5	0.018	0.088
		15	15	11,700	820	410	1.5	0.016	0.08	11,700	680	340	1.5	0.016	0.08	11,700	540	270	1.5	0.016	0.08
		18	18	11,300	680	340	1.5	0.012	0.056	11,300	570	280	1.5	0.012	0.056	11,300	450	220	1.5	0.012	0.056
		20	20	11,000	600	300	1.5	0.008	0.04	11,000	500	250	1.5	0.008	0.04	11,000	400	200	1.5	0.008	0.04
1.5	2.25	-	1.5	13,300	2,590	1,290	2.25	0.3	1.5	13,300	2,150	1,070	2.25	0.3	1.5	13,300	1,720	860	2.25	0.3	1.5
		6	4	12,800	2,350	1,170	2.25	0.22	1.1	12,800	1,950	970	2.25	0.22	1.1	12,800	1,560	780	2.25	0.22	1.1
		8	5.3	12,200	2,060	1,030	2.25	0.14	0.7	12,200	1,720	860	2.25	0.14	0.7	12,200	1,370	680	2.25	0.14	0.7
		10	6.7	11,400	1,850	920	2.25	0.1	0.54	11,400	1,540	770	2.25	0.1	0.54	11,400	1,230	610	2.25	0.1	0.54
		12	8	10,600	1,650	820	2.25	0.075	0.37	10,600	1,380	690	2.25	0.075	0.37	10,600	1,100	550	2.25	0.075	0.37
		15	10	9,400	1,150	570	2.25	0.036	0.18	9,400	960	480	2.25	0.036	0.18	9,400	770	380	2.25	0.036	0.18
		18	12	9,000	1,050	520	2.25	0.032	0.15	9,000	870	430	2.25	0.032	0.15	9,000	700	350	2.25	0.032	0.15
		20	13.3	8,700	980	490	2.25	0.028	0.14	8,700	810	400	2.25	0.028	0.14	8,700	650	320	2.25	0.028	0.14
		23	15.3	8,300	880	440	2.25	0.024	0.11	8,300	730	360	2.25	0.024	0.11	8,300	580	290	2.25	0.024	0.11
		25	16.7	8,100	820	410	2.25	0.02	0.1	8,100	680	340	2.25	0.02	0.1	8,100	550	270	2.25	0.02	0.1
		30	20	7,500	690	340	2.25	0.012	0.06	7,500	570	280	2.25	0.012	0.06	7,500	460	230	2.25	0.012	0.06
2	3	-	1.5	9,900	2,320	1,160	3	0.4	2	9,900	1,930	960	3	0.4	2	9,900	1,550	770	3	0.4	2
		6	3	9,900	2,320	1,160	3	0.4	2	9,900	1,930	960	3	0.4	2	9,900	1,550	770	3	0.4	2
		8	4	9,500	2,140	1,070	3	0.3	1.5	9,500	1,780	890	3	0.3	1.5	9,500	1,420	710	3	0.3	1.5
		10	5	9,100	1,960	980	3	0.2	1	9,100	1,640	820	3	0.2	1	9,100	1,310	650	3	0.2	1
		12	6	8,600	1,800	900	3	0.16	0.83	8,600	1,500	750	3	0.16	0.83	8,600	1,200	600	3	0.16	0.83
		15	7.5	7,700	1,560	780	3	0.11	0.58	7,700	1,300	650	3	0.11	0.58	7,700	1,040	520	3	0.11	0.58
		20	10	6,200	1,050	520	3	0.048	0.24	6,200	870	430	3	0.048	0.24	6,200	700	350	3	0.048	0.24
		24	12	5,900	950	470	3	0.042	0.2	5,900	790	390	3	0.042	0.2	5,900	630	310	3	0.042	0.2
		30	15	5,300	810	400	3	0.032	0.16	5,300	680	340	3	0.032	0.16	5,300	540	270	3	0.032	0.16
		40	20	4,500	620	310	3	0.016	0.08	4,500	510	250	3	0.016	0.08	4,500	410	200	3	0.016	0.08

Work Material				ABS・MC nylon・PTFE						Polycarbonate・POM・PEEK						Acrylic・Bakelite					
Dia.	Length of Cut	Under Neck Length	L/D	Spindle Speed	Feed		Depth of Cut			Spindle Speed	Feed		Depth of Cut			Spindle Speed	Feed		Depth of Cut		
					Side Milling	Slot-ting	Side Milling		Slot-ting		Side Milling	Slot-ting	Side Milling		Slot-ting		Side Milling	Slot-ting	Side Milling		Slot-ting
				min^{-1}	mm/min		a_p mm	a_e mm	a_p mm	min^{-1}	mm/min		a_p mm	a_e mm	a_p mm	min^{-1}	mm/min		a_p mm	a_e mm	a_p mm
3	4.5	-	1.5	6,600	2,060	1,030	4.5	0.6	3	6,600	1,710	850	4.5	0.6	3	6,600	1,370	680	4.5	0.6	3
		10	3.3	6,500	2,010	1,000	4.5	0.55	2.7	6,500	1,670	830	4.5	0.55	2.7	6,500	1,340	670	4.5	0.55	2.7
		12	4	6,300	1,910	950	4.5	0.45	2.2	6,300	1,590	790	4.5	0.45	2.2	6,300	1,270	630	4.5	0.45	2.2
		15	5	5,900	1,760	880	4.5	0.3	1.5	5,900	1,460	730	4.5	0.3	1.5	5,900	1,170	580	4.5	0.3	1.5
		20	6.7	5,200	1,500	750	4.5	0.21	1	5,200	1,250	620	4.5	0.21	1	5,200	1,000	500	4.5	0.21	1
		24	8	4,600	1,290	640	4.5	0.15	0.75	4,600	1,080	540	4.5	0.15	0.75	4,600	860	430	4.5	0.15	0.75
		30	10	3,700	920	460	4.5	0.072	0.36	3,700	770	380	4.5	0.072	0.36	3,700	610	300	4.5	0.072	0.36
		36	12	3,400	830	410	4.5	0.063	0.31	3,400	690	340	4.5	0.063	0.31	3,400	550	270	4.5	0.063	0.31
4	6(d4)	-	1.5	4,900	1,910	950	6	0.8	4	4,900	1,590	790	6	0.8	4	4,900	1,270	630	6	0.8	4
	6(d6)	-	1.5	4,900	1,910	950	6	0.8	4	4,900	1,590	790	6	0.8	4	4,900	1,270	630	6	0.8	4
	6	10	2.5	4,900	1,910	950	6	0.8	4	4,900	1,590	790	6	0.8	4	4,900	1,270	630	6	0.8	4
		15	3.8	4,800	1,810	900	6	0.65	3.2	4,800	1,510	750	6	0.65	3.2	4,800	1,200	600	6	0.65	3.2
		20	5	4,400	1,640	820	6	0.4	2	4,400	1,360	680	6	0.4	2	4,400	1,090	540	6	0.4	2
		30	7.5	3,600	1,270	630	6	0.23	1.1	3,600	1,060	530	6	0.23	1.1	3,600	850	420	6	0.23	1.1
		40	10	2,700	850	420	6	0.096	0.48	2,700	710	350	6	0.096	0.48	2,700	570	280	6	0.096	0.48
5	7.5	-	1.5	3,900	1,820	910	7.5	1	5	3,900	1,510	750	7.5	1	5	3,900	1,210	600	7.5	1	5
		30	6	3,300	1,410	700	7.5	0.41	2	3,300	1,180	590	7.5	0.41	2	3,300	940	470	7.5	0.41	2
		40	8	2,700	1,140	570	7.5	0.25	1.2	2,700	950	470	7.5	0.25	1.2	2,700	760	380	7.5	0.25	1.2
6	9	-	1.5	3,300	1,750	870	9	1.2	6	3,300	1,460	730	9	1.2	6	3,300	1,170	580	9	1.2	6
		40	6.7	2,600	1,270	630	9	0.43	2.1	2,600	1,060	530	9	0.43	2.1	2,600	850	420	9	0.43	2.1
		60	10	1,800	780	390	9	0.14	0.72	1,800	650	320	9	0.14	0.72	1,800	520	260	9	0.14	0.72
		80	13.3	1,600	650	320	9	0.11	0.56	1,600	540	270	9	0.11	0.56	1,600	430	210	9	0.11	0.56

Notes

※1 These recommended cutting conditions indicate just reference for roughing. It should be adjusted according to milling shape and machine type.
※2 For finishing process, please adjust to the optimized condition to meet the requirement of machining accuracy.
※3 Necessary to adjust the cutting condition at the parts overloading against the tools such as inner corner parts.
※4 When a tool with L/D 10 times and longer deflects on milling, please reduce Feed or Depth of Cut.
※5 For a tool with L/D longer than 20 times, reduce spindle speed, feed rate and depth of cut at sufficient values by referring the cutting conditions of L/D 20 times.
※6 Air blow is recommended.
※7 Care for chip removal to avoid being stuck or caught during process for better surface quality.
※8 Minimize chucking runout.
※9 Pay keen attention for tool length measurement with contact-type equipment for the tools under φ1 to avoid cutting edge damage.
※10 Reduce both spindle speed and feed at same rate for chattering and also for insufficient spindle speed of a machine.

RSE230

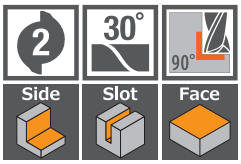
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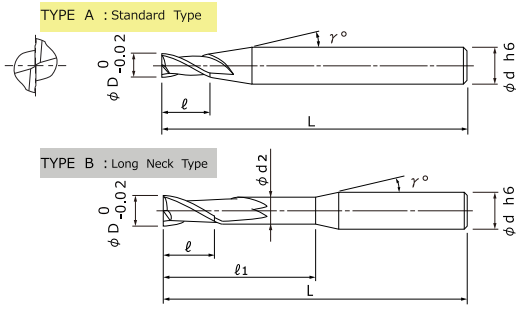
End Mill for Resin

Total 135 sizes

Square end mill for resin. Maximum L/D=10 for standard type
Maximum L/D=40 for long neck type







- Available for the suitable L/D (3D,5D and 10D), with standard type,
- long neck type or same-diameter shank type.
- Applicable to nonferrous material such as Aluminium and Copper.

Unit [Size : mm]

Code No.	Dia. (D)	Length of Cut (ℓ)	Under Neck Length (ℓ1)	Type	Neck Dia. (d2)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)
01-00644-00100	**0.1**	**0.3**	**-**	A	-	9°	4	45
01-00644-00108			**0.8**	B	0.085	12°	4	45
01-00644-00110			**1**		0.085	12°	4	45
01-00644-00150	**0.15**	**0.45**	**-**	A	-	9°	4	45
01-00644-00151			**1**	B	0.13	12°	4	45
01-00644-00152			**1.5**		0.13	12°	4	45
01-00644-00200	**0.2**	**0.6**	**-**	A	-	9°	4	45
01-00644-00201		**1**	**-**		-	9°	4	45
01-00644-00203		**0.6**	**1**	B	0.18	12°	4	45
01-00644-00204			**1.5**		0.18	12°	4	45
01-00644-00202			**2**		0.18	12°	4	45
01-00644-00300	**0.3**	**0.9**	**-**	A	-	9°	4	45
01-00644-00301		**1.5**	**-**		-	9°	4	45
01-00644-00302		**2**	**-**		-	9°	4	45
01-00644-00304		**0.9**	**1.5**	B	0.28	12°	4	45
01-00644-00305			**2**		0.28	12°	4	45
01-00644-00306			**2.5**		0.28	12°	4	45
01-00644-00303			**3**		0.28	12°	4	45
01-00644-00400	**0.4**	**1.2**	**-**	A	-	9°	4	45
01-00644-00401		**2**	**-**		-	9°	4	45
01-00644-00402		**3**	**-**		-	9°	4	45
01-00644-00403		**1.2**	**2**	B	0.37	12°	4	45
01-00644-00406			**2.5**		0.37	12°	4	45
01-00644-00407			**3**		0.37	12°	4	45
01-00644-00404			**4**		0.37	12°	4	45
01-00644-00405			**5**		0.37	12°	4	45
01-00644-00500	**0.5**	**1.5**	**-**	A	-	9°	4	45
01-00644-00501		**2.5**	**-**		-	9°	4	45
01-00644-00502		**5**	**-**		-	9°	4	45
01-00644-00503		**1.5**	**3**	B	0.46	12°	4	45
01-00644-00504			**4**		0.46	12°	4	45
01-00644-00506			**6**		0.46	12°	4	45
01-00644-00508			**8**		0.46	12°	4	50
01-00644-00510			**10**		0.46	12°	4	50
01-00644-00512			**12**		0.46	12°	4	50
01-00644-00515			**15**		0.46	12°	4	50
01-00644-00520			**20**		0.46	12°	4	50

How to Order When you order, indicate RSE230 (D)×(ℓ)[×(ℓ1)]. Choose Shank Dia. (d) for TypeA of Dia. 3×9ℓ・15ℓ and Dia. 4×12ℓ・20ℓ. ※ (γ) is reference value.

Unit [Size : mm]

Code No.	Dia. (D)	Length of Cut (ℓ)	Under Neck Length (ℓ1)	Type	Neck Dia. (d2)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)
01-00644-00600	0.6	1.8	-	A	-	9°	4	45
01-00644-00601		3	-		-	9°	4	45
01-00644-00602		4	-		-	9°	4	45
01-00644-00604		1.8	4	B	0.56	12°	4	45
01-00644-00606			6		0.56	12°	4	45
01-00644-00608			8		0.56	12°	4	50
01-00644-00610			10		0.56	12°	4	50
01-00644-00612			12		0.56	12°	4	50
01-00644-00800	0.8	2.4	-	A	-	9°	4	45
01-00644-00801		4	-		-	9°	4	45
01-00644-00802		6	-		-	9°	4	45
01-00644-00806		2.4	6	B	0.76	12°	4	45
01-00644-00808			8		0.76	12°	4	50
01-00644-00810			10		0.76	12°	4	50
01-00644-00812			12		0.76	12°	4	50
01-00644-00816			16		0.76	12°	4	60
01-00644-01000	1	3	-	A	-	9°	4	45
01-00644-01001		5	-		-	9°	4	50
01-00644-01003		7.5	-		-	9°	4	50
01-00644-01002		10	-		-	9°	4	50
01-00644-01006		3	6	B	0.95	12°	4	50
01-00644-01008			8		0.95	12°	4	50
01-00644-01010			10		0.95	12°	4	50
01-00644-01012			12		0.95	12°	4	50
01-00644-01015			15		0.95	12°	4	60
01-00644-01020			20		0.95	12°	4	60
01-00644-01025			25		0.95	12°	4	70
01-00644-01030			30		0.95	12°	4	70
01-00644-01035			35		0.95	12°	4	80
01-00644-01500	1.5	4.5	-	A	-	9°	4	45
01-00644-01501		7.5	-		-	9°	4	50
01-00644-01502		15	-		-	9°	4	60
01-00644-01510		4.5	10	B	1.45	12°	4	50
01-00644-01512			12		1.45	12°	4	50
01-00644-01515			15		1.45	12°	4	60
01-00644-01518			18		1.45	12°	4	60
01-00644-01523			23		1.45	12°	4	70
01-00644-01530			30		1.45	12°	4	70
01-00644-01538			38		1.45	12°	4	80
01-00644-01545			45		1.45	12°	4	90
01-00644-01553			53		1.45	12°	4	90
01-00644-02000	2	6	-	A	-	9°	4	50
01-00644-02001		10	-		-	9°	4	50
01-00644-02003		15	-		-	9°	4	60
01-00644-02002		20	-		-	9°	4	60
01-00644-02012		6	12	B	1.94	12°	4	60
01-00644-02015			15		1.94	12°	4	60
01-00644-02020			20		1.94	12°	4	60
01-00644-02024			24		1.94	12°	4	70
01-00644-02030			30		1.94	12°	4	80
01-00644-02040			40		1.94	12°	4	90
01-00644-02050			50		1.94	12°	4	110
01-00644-02060			60		1.94	12°	4	110
01-00644-02070			70		1.94	12°	4	110

RSE230

End Mill for Resin

Unit [Size : mm]

Code No.	Dia. (D)	Length of Cut (ℓ)	Under Neck Length (ℓ_1)	Type	Neck Dia. (d_2)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)
01-00644-03000	3	9	-	A	-	-	**3**	100
01-00644-03001			-		-	9°	**6**	50
01-00644-03003		15	-		-	-	**3**	100
01-00644-03002			-		-	9°	**6**	60
01-00644-03004		20	-		-	9°	6	60
01-00644-03005		25	-		-	9°	6	70
01-00644-03006		30	-		-	9°	6	70
01-00644-03015		9	15	B	2.85	12°	6	60
01-00644-03020			20		2.85	12°	6	60
01-00644-03024			24		2.85	12°	6	70
01-00644-03030			30		2.85	12°	6	70
01-00644-03036			36		2.85	12°	6	80
01-00644-03045			45		2.85	12°	6	90
01-00644-03060			60		2.85	12°	6	110
01-00644-03075			75		2.85	12°	6	120
01-00644-04000	4	12	-	A	-	-	**4**	120
01-00644-04001			-		-	9°	**6**	50
01-00644-04003		20	-		-	-	**4**	120
01-00644-04002			-		-	9°	**6**	60
01-00644-04004		30	-		-	9°	6	70
01-00644-04005		40	-		-	9°	6	90
01-00644-04020		12	20	B	3.8	12°	6	60
01-00644-04030			30		3.8	12°	6	70
01-00644-04040			40		3.8	12°	6	90
01-00644-04055			55		3.8	12°	6	110
01-00644-04070			70		3.8	12°	6	120
01-00644-05002	5	10	-	A	-	9°	6	60
01-00644-05000		15	-		-	9°	6	70
01-00644-05001		25	-		-	9°	6	80
01-00644-05003		35	-		-	9°	6	90
01-00644-05004		40	-		-	9°	6	100
01-00644-05030		15	30	B	4.8	12°	6	90
01-00644-05040			40		4.8	12°	6	100
01-00644-05055			55		4.8	12°	6	120
01-00644-05070			70		4.8	12°	6	130
01-00644-06002	6	12	-	A	-	-	6	70
01-00644-06000		18	-		-	-	6	80
01-00644-06003		25	-		-	-	6	80
01-00644-06001		30	-		-	-	6	90
01-00644-06004		40	-		-	-	6	100
01-00644-06005		50	-		-	-	6	120
01-00644-06040		18	40	B	5.8	-	6	100
01-00644-06060			60		5.8	-	6	120
01-00644-06080			80		5.8	-	6	130

How to Order When you order, indicate RSE230 (D)×(ℓ)[×(ℓ_1)]. Choose Shank Dia. (d) for TypeA of Dia. 3×9ℓ・15ℓ and Dia. 4×12ℓ・20ℓ. ※ (γ) is reference value.

Work Material				ABS・MC nylon・PTFE						Polycarbonate・POM・PEEK						Acrylic・Bakelite					
Dia.	Length of Cut	Under Neck Length	L/D	Spindle Speed	Feed		Depth of Cut			Spindle Speed	Feed		Depth of Cut			Spindle Speed	Feed		Depth of Cut		
					Side Milling	Slot-ting	Side Milling		Slot-ting		Side Milling	Slot-ting	Side Milling		Slot-ting		Side Milling	Slot-ting	Side Milling		Slot-ting
				min^{-1}	mm/min		a_p mm	a_e mm	a_p mm	min^{-1}	mm/min		a_p mm	a_e mm	a_p mm	min^{-1}	mm/min		a_p mm	a_e mm	a_p mm
0.1	**0.3**	**-**	**3**	20,000	190	90	0.2	0.02	0.1	20,000	160	80	0.2	0.02	0.1	20,000	120	60	0.2	0.02	0.1
		0.8	**8**	17,000	120	60	0.2	0.005	0.025	17,000	100	50	0.2	0.005	0.025	17,000	80	40	0.2	0.005	0.025
		1	**10**	15,600	80	40	0.2	0.003	0.012	15,600	60	30	0.2	0.003	0.012	15,600	50	20	0.2	0.003	0.012
0.15	**0.45**	**-**	**3**	20,000	400	200	0.3	0.03	0.15	20,000	340	170	0.3	0.03	0.15	20,000	270	130	0.3	0.03	0.15
		1	**6.7**	17,800	280	140	0.3	0.011	0.055	17,800	240	120	0.3	0.011	0.055	17,800	190	90	0.3	0.011	0.055
		1.5	**10**	15,600	170	80	0.3	0.004	0.018	15,600	140	70	0.3	0.004	0.018	15,600	110	50	0.3	0.004	0.018
0.2	**0.6**	**-**	**3**	20,000	620	310	0.4	0.04	0.2	20,000	520	260	0.4	0.04	0.2	20,000	410	200	0.4	0.04	0.2
	1	**-**	**5**	17,100	400	200	0.4	0.02	0.1	17,100	340	170	0.4	0.02	0.1	17,100	270	130	0.4	0.02	0.1
	0.6	**1**	**5**	19,000	500	250	0.4	0.02	0.1	19,000	410	200	0.4	0.02	0.1	19,000	330	160	0.4	0.02	0.1
		1.5	**7.5**	17,300	410	200	0.4	0.012	0.059	17,300	340	170	0.4	0.012	0.059	17,300	270	130	0.4	0.012	0.059
		2	**10**	15,600	260	130	0.4	0.005	0.024	15,600	220	110	0.4	0.005	0.024	15,600	170	80	0.4	0.005	0.024
0.3	**0.9**	**-**	**3**	20,000	1,050	520	0.6	0.06	0.3	20,000	880	440	0.6	0.06	0.3	20,000	700	350	0.6	0.06	0.3
	1.5	**-**	**5**	17,100	690	340	0.6	0.03	0.15	17,100	570	280	0.6	0.03	0.15	17,100	460	230	0.6	0.03	0.15
	2	**-**	**6.7**	16,100	600	300	0.6	0.022	0.1	16,100	500	250	0.6	0.022	0.1	16,100	400	200	0.6	0.022	0.1
	0.9	**1.5**	**5**	19,000	850	420	0.6	0.03	0.15	19,000	710	350	0.6	0.03	0.15	19,000	560	280	0.6	0.03	0.15
		2	**6.7**	17,800	750	370	0.6	0.022	0.1	17,800	620	310	0.6	0.022	0.1	17,800	500	250	0.6	0.022	0.1
		2.5	**8.3**	16,700	630	310	0.6	0.014	0.069	16,700	520	260	0.6	0.014	0.069	16,700	420	210	0.6	0.014	0.069
		3	**10**	15,600	450	220	0.6	0.008	0.036	15,600	370	180	0.6	0.008	0.036	15,600	300	150	0.6	0.008	0.036
0.4	**1.2**	**-**	**3**	20,000	1,480	740	0.8	0.08	0.4	20,000	1,240	620	0.8	0.08	0.4	20,000	990	490	0.8	0.08	0.4
	2	**-**	**5**	17,100	970	480	0.8	0.04	0.2	17,100	810	400	0.8	0.04	0.2	17,100	640	320	0.8	0.04	0.2
	3	**-**	**7.5**	15,600	800	400	0.8	0.024	0.11	15,600	660	330	0.8	0.024	0.11	15,600	530	260	0.8	0.024	0.11
	1.2	**2**	**5**	19,000	1,200	600	0.8	0.04	0.2	19,000	1,000	500	0.8	0.04	0.2	19,000	800	400	0.8	0.04	0.2
		2.5	**6.3**	18,100	1,090	540	0.8	0.032	0.15	18,100	910	450	0.8	0.032	0.15	18,100	720	360	0.8	0.032	0.15
		3	**7.5**	17,300	980	490	0.8	0.024	0.11	17,300	820	410	0.8	0.024	0.11	17,300	650	320	0.8	0.024	0.11
		4	**10**	15,600	630	310	0.8	0.01	0.048	15,600	530	260	0.8	0.01	0.048	15,600	420	210	0.8	0.01	0.048
		5	**12.5**	15,000	550	270	0.8	0.008	0.04	15,000	460	230	0.8	0.008	0.04	15,000	370	180	0.8	0.008	0.04
0.5	**1.5**	**-**	**3**	20,000	1,920	960	1	0.1	0.5	20,000	1,600	800	1	0.1	0.5	20,000	1,280	640	1	0.1	0.5
	2.5	**-**	**5**	17,100	1,250	620	1	0.05	0.25	17,100	1,040	520	1	0.05	0.25	17,100	830	410	1	0.05	0.25
	5	**-**	**10**	13,000	610	300	1	0.012	0.06	13,000	510	250	1	0.012	0.06	13,000	410	200	1	0.012	0.06
	1.5	**3**	**6**	18,300	1,430	710	1	0.042	0.2	18,300	1,190	590	1	0.042	0.2	18,300	950	470	1	0.042	0.2
		4	**8**	16,000	1,150	570	1	0.025	0.12	16,000	960	480	1	0.025	0.12	16,000	760	380	1	0.025	0.12
		6	**12**	15,200	740	370	1	0.011	0.052	15,200	620	310	1	0.011	0.052	15,200	490	240	1	0.011	0.052
		8	**16**	14,300	590	290	1	0.008	0.036	14,300	490	240	1	0.008	0.036	14,300	390	190	1	0.008	0.036
		10	**20**	13,500	450	220	1	0.004	0.02	13,500	370	180	1	0.004	0.02	13,500	300	150	1	0.004	0.02
0.6	**1.8**	**-**	**3**	20,000	2,160	1,080	1.2	0.12	0.6	20,000	1,800	900	1.2	0.12	0.6	20,000	1,440	720	1.2	0.12	0.6
	3	**-**	**5**	17,100	1,410	700	1.2	0.06	0.3	17,100	1,170	580	1.2	0.06	0.3	17,100	940	470	1.2	0.06	0.3
	4	**-**	**6.7**	16,100	1,240	620	1.2	0.044	0.21	16,100	1,030	510	1.2	0.044	0.21	16,100	820	410	1.2	0.044	0.21
	1.8	**4**	**6.7**	17,800	1,530	760	1.2	0.044	0.21	17,800	1,270	630	1.2	0.044	0.21	17,800	1,020	510	1.2	0.044	0.21
		6	**10**	15,000	890	440	1.2	0.015	0.072	15,000	740	370	1.2	0.015	0.072	15,000	590	290	1.2	0.015	0.072
		8	**13.3**	14,400	750	370	1.2	0.012	0.056	14,400	620	310	1.2	0.012	0.056	14,400	500	250	1.2	0.012	0.056
		10	**16.7**	13,700	610	300	1.2	0.008	0.04	13,700	510	250	1.2	0.008	0.04	13,700	410	200	1.2	0.008	0.04
		12	**20**	13,000	490	240	1.2	0.005	0.024	13,000	400	200	1.2	0.005	0.024	13,000	320	160	1.2	0.005	0.024
0.8	**2.4**	**-**	**3**	20,000	2,640	1,320	1.6	0.16	0.8	20,000	2,200	1,100	1.6	0.16	0.8	20,000	1,760	880	1.6	0.16	0.8
	4	**-**	**5**	17,100	1,720	860	1.6	0.08	0.4	17,100	1,430	710	1.6	0.08	0.4	17,100	1,150	570	1.6	0.08	0.4
	6	**-**	**7.5**	15,600	1,420	710	1.6	0.047	0.23	15,600	1,180	590	1.6	0.047	0.23	15,600	940	470	1.6	0.047	0.23
	2.4	**6**	**7.5**	17,300	1,750	870	1.6	0.047	0.23	17,300	1,460	730	1.6	0.047	0.23	17,300	1,160	580	1.6	0.047	0.23
		8	**10**	14,000	1,010	500	1.6	0.02	0.096	14,000	840	420	1.6	0.02	0.096	14,000	670	330	1.6	0.02	0.096
		10	**12.5**	13,400	880	440	1.6	0.016	0.08	13,400	730	360	1.6	0.016	0.08	13,400	580	290	1.6	0.016	0.08
		12	**15**	12,700	750	370	1.6	0.013	0.064	12,700	620	310	1.6	0.013	0.064	12,700	500	250	1.6	0.013	0.064
		16	**20**	12,000	550	270	1.6	0.007	0.032	12,000	460	230	1.6	0.007	0.032	12,000	360	180	1.6	0.007	0.032

Recommended Milling Conditions

Work Material				ABS・MC nylon・PTFE						Polycarbonate・POM・PEEK						Acrylic・Bakelite					
Dia.	Length of Cut	Under Neck Length	L/D	Spindle Speed	Feed		Depth of Cut			Spindle Speed	Feed		Depth of Cut			Spindle Speed	Feed		Depth of Cut		
					Side Milling	Slot-ting	Side Milling		Slot-ting		Side Milling	Slot-ting	Side Milling		Slot-ting		Side Milling	Slot-ting	Side Milling		Slot-ting
				min^{-1}	mm/min		a_p mm	a_e mm	a_p mm	min^{-1}	mm/min		a_p mm	a_e mm	a_p mm	min^{-1}	mm/min		a_p mm	a_e mm	a_p mm
1	**3**	**-**	**3**	17,000	2,650	1,320	2	0.2	1	17,000	2,210	1,100	2	0.2	1	17,000	1,760	880	2	0.2	1
	5	**-**	**5**	14,500	1,730	860	2	0.1	0.5	14,500	1,440	720	2	0.1	0.5	14,500	1,150	570	2	0.1	0.5
	7.5	**-**	**7.5**	13,200	1,420	710	2	0.059	0.29	13,200	1,180	590	2	0.059	0.29	13,200	940	470	2	0.059	0.29
	10	**-**	**10**	12,000	920	460	2	0.024	0.12	12,000	770	380	2	0.024	0.12	12,000	610	300	2	0.024	0.12
	3	**6**	**6**	15,500	1,980	990	2	0.084	0.41	15,500	1,650	820	2	0.084	0.41	15,500	1,320	660	2	0.084	0.41
		8	**8**	14,400	1,690	840	2	0.05	0.25	14,400	1,400	700	2	0.05	0.25	14,400	1,120	560	2	0.05	0.25
		10	**10**	13,000	1,110	550	2	0.024	0.12	13,000	920	460	2	0.024	0.12	13,000	740	370	2	0.024	0.12
		12	**12**	12,400	980	490	2	0.021	0.1	12,400	820	410	2	0.021	0.1	12,400	650	320	2	0.021	0.1
		15	**15**	11,700	820	410	2	0.016	0.08	11,700	680	340	2	0.016	0.08	11,700	540	270	2	0.016	0.08
		20	**20**	11,000	600	300	2	0.008	0.04	11,000	500	250	2	0.008	0.04	11,000	400	200	2	0.008	0.04
1.5	**4.5**	**-**	**3**	13,300	2,590	1,290	3	0.3	1.5	13,300	2,150	1,070	3	0.3	1.5	13,300	1,720	860	3	0.3	1.5
	7.5	**-**	**5**	11,100	1,710	850	3	0.15	0.75	11,100	1,430	710	3	0.15	0.75	11,100	1,140	570	3	0.15	0.75
	15	**-**	**10**	8,500	930	460	3	0.036	0.18	8,500	780	390	3	0.036	0.18	8,500	620	310	3	0.036	0.18
	4.5	**10**	**6.7**	11,400	1,850	920	3	0.1	0.54	11,400	1,540	770	3	0.1	0.54	11,400	1,230	610	3	0.1	0.54
		12	**8**	10,600	1,650	820	3	0.075	0.37	10,600	1,380	690	3	0.075	0.37	10,600	1,100	550	3	0.075	0.37
		15	**10**	9,400	1,150	570	3	0.036	0.18	9,400	960	480	3	0.036	0.18	9,400	770	380	3	0.036	0.18
		18	**12**	9,000	1,050	520	3	0.032	0.15	9,000	870	430	3	0.032	0.15	9,000	700	350	3	0.032	0.15
		23	**15.3**	8,300	880	440	3	0.024	0.11	8,300	730	360	3	0.024	0.11	8,300	580	290	3	0.024	0.11
		30	**20**	7,500	690	340	3	0.012	0.06	7,500	570	280	3	0.012	0.06	7,500	460	230	3	0.012	0.06
2	**6**	**-**	**3**	9,900	2,320	1,160	4	0.4	2	9,900	1,930	960	4	0.4	2	9,900	1,550	770	4	0.4	2
	10	**-**	**5**	8,200	1,590	790	4	0.2	1	8,200	1,320	660	4	0.2	1	8,200	1,060	530	4	0.2	1
	15	**-**	**7.5**	7,000	1,260	630	4	0.11	0.58	7,000	1,050	520	4	0.11	0.58	7,000	840	420	4	0.11	0.58
	20	**-**	**10**	5,600	850	420	4	0.048	0.24	5,600	710	350	4	0.048	0.24	5,600	560	280	4	0.048	0.24
	6	**12**	**6**	8,600	1,800	900	4	0.16	0.83	8,600	1,500	750	4	0.16	0.83	8,600	1,200	600	4	0.16	0.83
		15	**7.5**	7,700	1,560	780	4	0.11	0.58	7,700	1,300	650	4	0.11	0.58	7,700	1,040	520	4	0.11	0.58
		20	**10**	6,200	1,050	520	4	0.048	0.24	6,200	870	430	4	0.048	0.24	6,200	700	350	4	0.048	0.24
		24	**12**	5,900	950	470	4	0.042	0.2	5,900	790	390	4	0.042	0.2	5,900	630	310	4	0.042	0.2
		30	**15**	5,300	810	400	4	0.032	0.16	5,300	680	340	4	0.032	0.16	5,300	540	270	4	0.032	0.16
		40	**20**	4,500	620	310	4	0.016	0.08	4,500	510	250	4	0.016	0.08	4,500	410	200	4	0.016	0.08
3	**9(d3)**	**-**	**3**	6,600	2,060	1,030	6	0.6	3	6,600	1,710	850	6	0.6	3	6,600	1,370	680	6	0.6	3
	9(d6)	**-**	**3**	6,600	2,060	1,030	6	0.6	3	6,600	1,710	850	6	0.6	3	6,600	1,370	680	6	0.6	3
	15(d3)	**-**	**5**	5,300	1,420	710	6	0.3	1.5	5,300	1,190	590	6	0.3	1.5	5,300	950	470	6	0.3	1.5
	15(d6)	**-**	**5**	5,300	1,420	710	6	0.3	1.5	5,300	1,190	590	6	0.3	1.5	5,300	950	470	6	0.3	1.5
	20	**-**	**6.7**	4,700	1,210	600	6	0.21	1	4,700	1,010	500	6	0.21	1	4,700	810	400	6	0.21	1
	25	**-**	**8.3**	4,000	990	490	6	0.13	0.68	4,000	830	410	6	0.13	0.68	4,000	660	330	6	0.13	0.68
	30	**-**	**10**	3,300	740	370	6	0.072	0.36	3,300	620	310	6	0.072	0.36	3,300	490	240	6	0.072	0.36
	9	**15**	**5**	5,900	1,760	880	6	0.3	1.5	5,900	1,460	730	6	0.3	1.5	5,900	1,170	580	6	0.3	1.5
		20	**6.7**	5,200	1,500	750	6	0.21	1	5,200	1,250	620	6	0.21	1	5,200	1,000	500	6	0.21	1
		24	**8**	4,600	1,290	640	6	0.15	0.75	4,600	1,080	540	6	0.15	0.75	4,600	860	430	6	0.15	0.75
		30	**10**	3,700	920	460	6	0.072	0.36	3,700	770	380	6	0.072	0.36	3,700	610	300	6	0.072	0.36
		36	**12**	3,400	830	410	6	0.063	0.31	3,400	690	340	6	0.063	0.31	3,400	550	270	6	0.063	0.31
		45	**15**	2,900	690	340	6	0.048	0.24	2,900	580	290	6	0.048	0.24	2,900	460	230	6	0.048	0.24
		60	**20**	2,300	500	250	6	0.024	0.12	2,300	420	210	6	0.024	0.12	2,300	330	160	6	0.024	0.12

Work Material				ABS・MC nylon・PTFE						Polycarbonate・POM・PEEK						Acrylic・Bakelite					
Dia.	Length of Cut	Under Neck Length	L/D	Spindle Speed	Feed		Depth of Cut			Spindle Speed	Feed		Depth of Cut			Spindle Speed	Feed		Depth of Cut		
					Side Milling	Slot-ting	Side Milling		Slot-ting		Side Milling	Slot-ting	Side Milling		Slot-ting		Side Milling	Slot-ting	Side Milling		Slot-ting
				min^{-1}	mm/min		a_p mm	a_e mm	a_p mm	min^{-1}	mm/min		a_p mm	a_e mm	a_p mm	min^{-1}	mm/min		a_p mm	a_e mm	a_p mm
4	**12(d4)**	**-**	**3**	4,900	1,910	950	8	0.8	4	4,900	1,590	790	8	0.8	4	4,900	1,270	630	8	0.8	4
	12(d6)	**-**	**3**	4,900	1,910	950	8	0.8	4	4,900	1,590	790	8	0.8	4	4,900	1,270	630	8	0.8	4
	20(d4)	**-**	**5**	4,000	1,320	660	8	0.4	2	4,000	1,100	550	8	0.4	2	4,000	880	440	8	0.4	2
	20(d6)	**-**	**5**	4,000	1,320	660	8	0.4	2	4,000	1,100	550	8	0.4	2	4,000	880	440	8	0.4	2
	30	**-**	**7.5**	3,200	1,030	510	8	0.23	1.1	3,200	860	430	8	0.23	1.1	3,200	690	340	8	0.23	1.1
	40	**-**	**10**	2,500	690	340	8	0.096	0.48	2,500	580	290	8	0.096	0.48	2,500	460	230	8	0.096	0.48
	12	**20**	**5**	4,400	1,640	820	8	0.4	2	4,400	1,360	680	8	0.4	2	4,400	1,090	540	8	0.4	2
		30	**7.5**	3,600	1,270	630	8	0.23	1.1	3,600	1,060	530	8	0.23	1.1	3,600	850	420	8	0.23	1.1
		40	**10**	2,700	850	420	8	0.096	0.48	2,700	710	350	8	0.096	0.48	2,700	570	280	8	0.096	0.48
		55	**13.8**	2,300	690	340	8	0.072	0.36	2,300	580	290	8	0.072	0.36	2,300	460	230	8	0.072	0.36
		70	**17.5**	1,900	550	270	8	0.048	0.24	1,900	460	230	8	0.048	0.24	1,900	370	180	8	0.048	0.24
5	**10**	**-**	**2**	3,900	1,820	910	10	1	5	3,900	1,510	750	10	1	5	3,900	1,210	600	10	1	5
	15	**-**	**3**	3,900	1,820	910	10	1	5	3,900	1,510	750	10	1	5	3,900	1,210	600	10	1	5
	25	**-**	**5**	3,200	1,260	630	10	0.5	2.5	3,200	1,050	520	10	0.5	2.5	3,200	840	420	10	0.5	2.5
	35	**-**	**7**	2,700	1,030	510	10	0.33	1.6	2,700	860	430	10	0.33	1.6	2,700	690	340	10	0.33	1.6
	40	**-**	**8**	2,500	930	460	10	0.25	1.2	2,500	770	380	10	0.25	1.2	2,500	620	310	10	0.25	1.2
	15	**30**	**6**	3,300	1,410	700	10	0.41	2	3,300	1,180	590	10	0.41	2	3,300	940	470	10	0.41	2
		40	**8**	2,700	1,140	570	10	0.25	1.2	2,700	950	470	10	0.25	1.2	2,700	760	380	10	0.25	1.2
		55	**11**	2,100	770	380	10	0.11	0.56	2,100	640	320	10	0.11	0.56	2,100	510	250	10	0.11	0.56
		70	**14**	1,800	650	320	10	0.088	0.44	1,800	540	270	10	0.088	0.44	1,800	430	210	10	0.088	0.44
6	**12**	**-**	**2**	3,300	1,750	870	12	1.2	6	3,300	1,460	730	12	1.2	6	3,300	1,170	580	12	1.2	6
	18	**-**	**3**	3,300	1,750	870	12	1.2	6	3,300	1,460	730	12	1.2	6	3,300	1,170	580	12	1.2	6
	25	**-**	**4.2**	2,800	1,300	650	12	0.85	4.2	2,800	1,080	540	12	0.85	4.2	2,800	860	430	12	0.85	4.2
	30	**-**	**5**	2,600	1,210	600	12	0.6	3	2,600	1,010	500	12	0.6	3	2,600	810	400	12	0.6	3
	40	**-**	**6.7**	2,300	1,030	510	12	0.43	2.1	2,300	860	430	12	0.43	2.1	2,300	690	340	12	0.43	2.1
	50	**-**	**8.3**	2,000	850	420	12	0.27	1.3	2,000	700	350	12	0.27	1.3	2,000	560	280	12	0.27	1.3
	18	**40**	**6.7**	2,600	1,270	630	12	0.43	2.1	2,600	1,060	530	12	0.43	2.1	2,600	850	420	12	0.43	2.1
		60	**10**	1,800	780	390	12	0.14	0.72	1,800	650	320	12	0.14	0.72	1,800	520	260	12	0.14	0.72
		80	**13.3**	1,600	650	320	12	0.11	0.56	1,600	540	270	12	0.11	0.56	1,600	430	210	12	0.11	0.56

Notes

※1 These recommended cutting conditions indicate just reference for roughing. It should be adjusted according to milling shape and machine type.
※2 Reduce both spindle speed and feed at same rate for chattering and also for insufficient spindle speed of a machine.
※3 For finishing process, please adjust to the optimized condition to meet the requirement of machining accuracy.
※4 Necessary to adjust the cutting condition at the parts overloading against the tools such as inner corner parts.
※5 Adjust both spindle speed and feed at the same rate when chattering or abnormal sounds occurred.
※6 When a tool with L/D 10 times and longer deflects on milling, please reduce Feed or Depth of Cut.
※7 For a tool with L/D longer than 20 times, reduce spindle speed, feed rate and depth of cut at sufficient values by referring the cutting conditions of L/D 20 times.
※8 Air blow is recommended.
※9 Care for chip removal to avoid being stuck or caught during process for better surface quality.
※10 Minimize chucking runout.
※11 Pay keen attention for tool length measurement with contact-type equipment for the tools under 1 to avoid cutting edge damage.

RSB230

Size R0.1 ～ R3

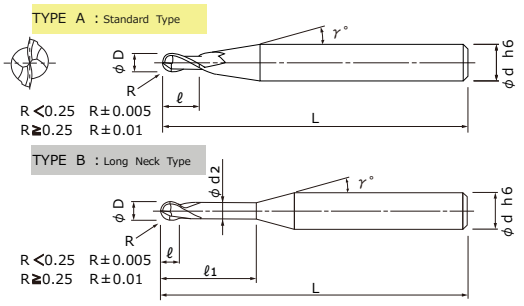
MG

Ball End Mill for Resin

Total 63 sizes

Ball end mill for resin. Maximum L/D=10 for standard type
Maximum L/D=40 for long neck type





- Available for the suitable L/D (3D,5D and 10D), with standard type, long neck type or same-diameter shank type.
- Applicable to nonferrous material such as Aluminium and Copper.

Unit [Size : mm]

Code No.	Radius (R)	Length of Cut (ℓ)	Under Neck Length (ℓ1)	Type	Dia. (D)	Neck Taper Angle (γ)	Neck Dia. (d2)	Shank Dia. (d)	Overall Length (L)
01-00654-01000	R0.1	0.6	-	A	0.2	9°	-	4	50
01-00654-01001		1	-		0.2	9°	-	4	50
01-00654-01002		0.6	2	B	0.2	12°	0.18	4	50
01-00654-01500	R0.15	0.9	-	A	0.3	9°	-	4	50
01-00654-01501		1.5	-		0.3	9°	-	4	50
01-00654-01503		0.9	3	B	0.3	12°	0.28	4	50
01-00654-02000	R0.2	1.2	-	A	0.4	9°	-	4	50
01-00654-02001		2	-		0.4	9°	-	4	50
01-00654-02004		1.2	4	B	0.4	12°	0.37	4	50
01-00654-02005			5		0.4	12°	0.37	4	50
01-00654-02500	R0.25	1.5	-	A	0.5	9°	-	4	50
01-00654-02501		2.5	-		0.5	9°	-	4	50
01-00654-02502		5	-		0.5	9°	-	4	50
01-00654-02510		1.5	10	B	0.5	12°	0.46	4	50
01-00654-02515			15		0.5	12°	0.46	4	50
01-00654-02520			20		0.5	12°	0.46	4	60
01-00654-03000	R0.3	1.8	-	A	0.6	9°	-	4	50
01-00654-03001		3	-		0.6	9°	-	4	50
01-00654-03006		1.8	6	B	0.6	12°	0.56	4	50
01-00654-03010			10		0.6	12°	0.56	4	50
01-00654-04000	R0.4	2.4	-	A	0.8	9°	-	4	50
01-00654-04001		4	-		0.8	9°	-	4	50
01-00654-04008		2.4	8	B	0.8	12°	0.76	4	50
01-00654-04012			12		0.8	12°	0.76	4	50
01-00654-05000	R0.5	3	-	A	1	9°	-	4	50
01-00654-05001		5	-		1	9°	-	4	50
01-00654-05002		10	-		1	9°	-	4	50
01-00654-05010		3	10	B	1	12°	0.95	4	50
01-00654-05015			15		1	12°	0.95	4	60
01-00654-05020			20		1	12°	0.95	4	60
01-00654-05030			30		1	12°	0.95	4	70

How to Order When you order, indicate RSB230 (R)×(ℓ)[×(ℓ_1)]. Choose Shank Dia. (d) for typeA of R1.5×9 ℓ and R2×12 ℓ . ※ (γ) is reference value.

Unit [Size : mm]

Code No.	Radius (R)	Length of Cut (ℓ)	Under Neck Length (ℓ1)	Type	Dia. (D)	Neck Taper Angle (γ)	Neck Dia. (d2)	Shank Dia. (d)	Overall Length (L)
01-00654-07500	R0.75	4.5	-	A	1.5	9°	-	4	50
01-00654-07501		7.5	-		1.5	9°	-	4	50
01-00654-07502		15	-		1.5	9°	-	4	60
01-00654-07515		4.5	15	B	1.5	12°	1.45	4	60
01-00654-07530			30		1.5	12°	1.45	4	70
01-00654-07545			45		1.5	12°	1.45	4	90
01-00654-10000	R1	6	-	A	2	9°	-	4	50
01-00654-10001		10	-		2	9°	-	4	50
01-00654-10002		20	-		2	9°	-	4	60
01-00654-10020		6	20	B	2	12°	1.94	4	60
01-00654-10030			30		2	12°	1.94	4	80
01-00654-10050			50		2	12°	1.94	4	110
01-00654-10070			70		2	12°	1.94	4	110
01-00654-15000	R1.5	9	-	A	3	-	-	**3**	100
01-00654-15001			-		3	9°	-	**6**	50
01-00654-15002		15	-		3	9°	-	6	60
01-00654-15030		9	30	B	3	12°	2.85	6	70
01-00654-15045			45		3	12°	2.85	6	90
01-00654-15060			60		3	12°	2.85	6	110
01-00654-20000	R2	12	-	A	4	-	-	**4**	120
01-00654-20001			-		4	9°	-	**6**	50
01-00654-20002		20	-		4	9°	-	6	60
01-00654-20030		12	30	B	4	12°	3.8	6	70
01-00654-20040			40		4	12°	3.8	6	90
01-00654-20070			70		4	12°	3.8	6	120
01-00654-25000	R2.5	15	-	A	5	9°	-	6	70
01-00654-25001		25	-		5	9°	-	6	80
01-00654-30000	R3	18	-	A	6	-	-	6	80
01-00654-30001		30	-		6	-	-	6	90
01-00654-30040		18	40	B	6	-	5.8	6	100
01-00654-30060			60		6	-	5.8	6	120
01-00654-30080			80		6	-	5.8	6	130

Recommended Milling Conditions

Work Material				ABS・MC nylon・PTFE			Polycarbonate・POM・PEEK			Acrylic・Bakelite		
Radius	Length of Cut	Under Neck Length	L/D	Spindle Speed	Feed	Depth of Cut	Spindle Speed	Feed	Depth of Cut	Spindle Speed	Feed	Depth of Cut
				min^{-1}	mm/min	a_p mm	min^{-1}	mm/min	a_p mm	min^{-1}	mm/min	a_p mm
R0.1	0.6	-	3	20,000	620	0.1	20,000	520	0.1	20,000	410	0.1
	1	-	5	17,100	400	0.05	17,100	340	0.05	17,100	270	0.05
	0.6	2	10	15,600	260	0.012	15,600	220	0.012	15,600	170	0.012
R0.15	0.9	-	3	20,000	1,050	0.15	20,000	880	0.15	20,000	700	0.15
	1.5	-	5	17,100	690	0.075	17,100	570	0.075	17,100	460	0.075
	0.9	3	10	15,600	450	0.018	15,600	370	0.018	15,600	300	0.018
R0.2	1.2	-	3	20,000	1,480	0.2	20,000	1,240	0.2	20,000	990	0.2
	2	-	5	17,100	970	0.1	17,100	810	0.1	17,100	640	0.1
	1.2	4	10	15,600	630	0.024	15,600	530	0.024	15,600	420	0.024
		5	12.5	15,000	550	0.02	15,000	460	0.02	15,000	370	0.02
R0.25	1.5	-	3	20,000	1,920	0.25	20,000	1,600	0.25	20,000	1,280	0.25
	2.5	-	5	17,100	1,250	0.12	17,100	1,040	0.12	17,100	830	0.12
	5	-	10	14,000	660	0.03	14,000	550	0.03	14,000	440	0.03
	1.5	10	20	13,500	450	0.01	13,500	370	0.01	13,500	300	0.01
R0.3	1.8	-	3	20,000	2,160	0.3	20,000	1,800	0.3	20,000	1,440	0.3
	3	-	5	17,100	1,410	0.15	17,100	1,170	0.15	17,100	940	0.15
	1.8	6	10	15,000	890	0.036	15,000	740	0.036	15,000	590	0.036
		10	16.7	13,700	610	0.02	13,700	510	0.02	13,700	410	0.02
R0.4	2.4	-	3	20,000	2,640	0.4	20,000	2,200	0.4	20,000	1,760	0.4
	4	-	5	17,100	1,720	0.2	17,100	1,430	0.2	17,100	1,150	0.2
	2.4	8	10	14,000	1,010	0.048	14,000	840	0.048	14,000	670	0.048
		12	15	12,700	750	0.032	12,700	620	0.032	12,700	500	0.032
R0.5	3	-	3	17,000	2,650	0.5	17,000	2,210	0.5	17,000	1,760	0.5
	5	-	5	14,500	1,730	0.25	14,500	1,440	0.25	14,500	1,150	0.25
	10	-	10	12,000	920	0.06	12,000	770	0.06	12,000	610	0.06
	3	10	10	13,000	1,110	0.06	13,000	920	0.06	13,000	740	0.06
		15	15	11,700	820	0.04	11,700	680	0.04	11,700	540	0.04
		20	20	11,000	600	0.02	11,000	500	0.02	11,000	400	0.02
R0.75	4.5	-	3	13,300	2,590	0.75	13,300	2,150	0.75	13,300	1,720	0.75
	7.5	-	5	11,100	1,710	0.37	11,100	1,430	0.37	11,100	1,140	0.37
	15	-	10	8,500	930	0.09	8,500	780	0.09	8,500	620	0.09
	4.5	15	10	9,400	1,150	0.09	9,400	960	0.09	9,400	770	0.09
		30	20	7,500	690	0.03	7,500	570	0.03	7,500	460	0.03
R1	6	-	3	9,900	2,320	1	9,900	1,930	1	9,900	1,550	1
	10	-	5	8,200	1,590	0.5	8,200	1,320	0.5	8,200	1,060	0.5
	20	-	10	5,600	850	0.12	5,600	710	0.12	5,600	560	0.12
	6	20	10	6,200	1,050	0.12	6,200	870	0.12	6,200	700	0.12
		30	15	5,300	810	0.08	5,300	680	0.08	5,300	540	0.08
R1.5	9(d3)	-	3	6,600	2,060	1.5	6,600	1,710	1.5	6,600	1,370	1.5
	9(d6)	-	3	6,600	2,060	1.5	6,600	1,710	1.5	6,600	1,370	1.5
	15	-	5	5,300	1,420	0.75	5,300	1,190	0.75	5,300	950	0.75
	9	30	10	3,700	920	0.18	3,700	770	0.18	3,700	610	0.18
		45	15	2,900	690	0.12	2,900	580	0.12	2,900	460	0.12
		60	20	2,300	500	0.06	2,300	420	0.06	2,300	330	0.06

Work Material				ABS・MC nylon・PTFE			Polycarbonate・POM・PEEK			Acrylic・Bakelite		
Radius	Length of Cut	Under Neck Length	L/D	Spindle Speed	Feed	Depth of Cut	Spindle Speed	Feed	Depth of Cut	Spindle Speed	Feed	Depth of Cut
				min^{-1}	mm/min	a_p mm	min^{-1}	mm/min	a_p mm	min^{-1}	mm/min	a_p mm
R2	12(d4)	-	3	4,900	1,910	2	4,900	1,590	2	4,900	1,270	2
	12(d6)	-	3	4,900	1,910	2	4,900	1,590	2	4,900	1,270	2
	20	-	5	4,000	1,320	1	4,000	1,100	1	4,000	880	1
	12	30	7.5	3,600	1,270	0.58	3,600	1,060	0.58	3,600	850	0.58
		40	10	2,700	850	0.24	2,700	710	0.24	2,700	570	0.24
		70	17.5	1,900	550	0.12	1,900	460	0.12	1,900	370	0.12
R2.5	15	-	3	3,900	1,820	2.5	3,900	1,510	2.5	3,900	1,210	2.5
	25	-	5	3,200	1,260	1.2	3,200	1,050	1.2	3,200	840	1.2
R3	18	-	3	3,300	1,750	3	3,300	1,460	3	3,300	1,170	3
	30	-	5	2,600	1,210	1.5	2,600	1,010	1.5	2,600	810	1.5
	18	40	6.7	2,600	1,270	1	2,600	1,060	1	2,600	850	1
		60	10	1,800	780	0.36	1,800	650	0.36	1,800	520	0.36
		80	13.3	1,600	650	0.28	1,600	540	0.28	1,600	430	0.28

Notes

※1 These recommended cutting conditions indicate just reference for roughing. It should be adjusted according to milling shape and machine type.
※2 Reduce both spindle speed and feed at same rate for chattering and also for insufficient spindle speed of a machine.
※3 For finishing process, please adjust to the optimized condition to meet the requirement of machining accuracy.
※4 Necessary to adjust the cutting condition at the parts overloading against the tools such as inner corner parts.
※5 Adjust both spindle speed and feed at the same rate when chattering or abnormal sounds occurred.
※6 When a tool with L/D 10 times and longer deflects on milling, please reduce Feed or Depth of Cut.
※7 For a tool with L/D longer than 20 times, reduce spindle speed, feed rate and depth of cut at sufficient values by referring the cutting conditions of L/D 20 times.
※8 Air blow is recommended.
※9 Care for chip removal to avoid being stuck or caught during process for better surface quality.
※10 Minimize chucking runout.

Machining case

Ball End Mill for Resin

RSB230



Work material : Acrylic
Work size : 50 × 50 mm
(Machining depth 8 mm)
Coolant : Oil mist
Total machining time : 3hr 20 min



Process	Finishing
Tool	RSB230 R1 × 6
Spindle speed [min^{-1}]	20,000
Feed [mm/min]	1,600
Depth of cut ap × ae [mm]	0.02 × 0.03
Machining time	2hr 20min

Sharp cutting edge design with high cutting ability enables processing with high transparency

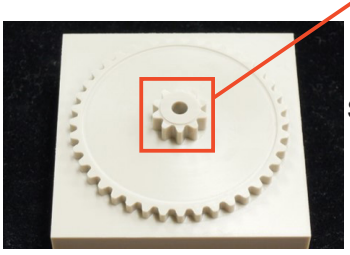
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Short Flute End Mill for Resin

RSES230



Work material : PEEK resin
Work size : 45 × 45 mm
(Machining depth 6.5 mm)
Coolant : Water-soluble fluid
Total machining time : 1hr 40 min





Smooth cutting surface with no chattering

Process	Roughing	Semi-finishing	Finishing
Tool	RSES230 ϕ6 × 9	RSES230 ϕ1 × 1.5 × 4	RSES230 ϕ1 × 1.5 × 4
Spindle speed [min^{-1}]	3,000	20,000	
Feed [mm/min]	1,250	800	400
Depth of cut ap × ae [mm]	6.47 × 1	0.3 × 0.5	0.3 × 0.03 (Side) 0.03 × 0.3 (Flat)
Machining time	4min 30sec	7min	1hr 28min 30sec

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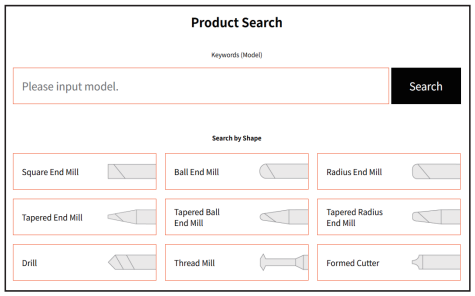
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CAUTION Attention on Safety

1) When removing tools from cases, be careful of getting-out of tools and don't touch directly the cutting edges.
2) Never touch the cutting edges directly with bare hand.
3) Use safety covers and eye protection, as tools may be broken.
4) Use holders, etc. that match the tools and nature of the processing operations. The tool should be firmly attached to the holder to prevent shaking.
5) The work materials clamp firmly.
6) Make sure of dimensions of tools and work pieces before starting operation.
7) It is necessary to adjust conditions according to the dimensions of work materials and the machine.
8) Select a cutting fluid appropriate to the particular usage. Using a non-water cutting fluid could lead to fires due to sparks generated during processing or heat caused by breakage. Ensure that you take proper fire-prevention measures.
9) If abnormal sound, etc. occurs during processing, stop the machine immediately.
10) Don't modify tools.

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