

HYPERLine[®]

Milling Tools

- › For High Feed & Speed Machining Application
- › For Machining Alloy Steel & Super Alloys like Stainless Steel, Inconel etc.,
- › Made from Ultra-Fine Carbide
- › Smooth Coat For Better Wear Resistance & Chip Flow



FOR MATERIAL GROUP

P

• Alloy Steel
• Hardened Steel

M

• Mild Steel
• Stainless Steel

S

• Super Alloys

N

• Non Ferrous

VHS - Series

Variable Helix Endmills

PRECISION TOLERANCE

Precision Tolerance & Wide Fluting for better shearing, better surface finish with improved Tool Life

RIGID FLUTE

Appropriate Designed Rack Angle Determines the Size & Shape of Chip as well Pressure and Temperature on Tool for Advance Hi Speed Productivity

CRN COAT

Crn Coating Now has Higher Hardness Properties Combined with improved Toughness and smooth chip flow for low Friction

35° | 38° VARIABLE HELIX

Damping vibration reduce chatter, Minimize heat buildup produce good surface finish, Extended tool life

PREMIUM CARBIDE

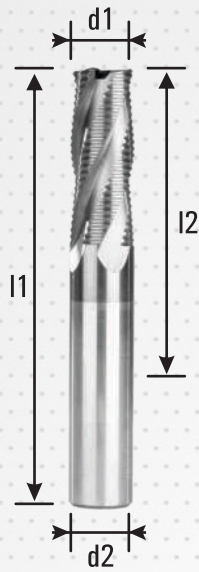
Ultrafine Substrate material used for its Properties of Wear Resistance & Toughness



Features & Benefits:

- ⌘ Lower Radial Force
- ⌘ Efficient Chip Evacuation
- ⌘ Good for difficult-to-machine materials
- ⌘ Advanced coating for superior performance & tool life
- ⌘ Proven to work in high speed machining & dry conditions

ISO	Material	Cutting Speed V_c (m/min)			Feed Rate F_z (mm/t)		
		$A_e = 25\%$	$A_e = 50\%$	$A_e = 100\%$	$A_e = 25\%$	$A_e = 50\%$	$A_e = 100\%$
P	Unalloyed Steel	190	180	150	0,008 x DC	0,004 x DC	0,004 x DC
	Low-Alloyed Steel	180	160	150	0,007 x DC	0,004 x DC	0,003 x DC
	High-Alloyed Steel	160	150	120	0,006 x DC	0,004 x DC	0,003 x DC
M	SS - Ferritic / Martensitic	140	130	110	0,006 x DC	0,005 x DC	0,004 x DC
	SS - Austenitic	130	120	110	0,006 x DC	0,005 x DC	0,004 x DC
	SS - Austenitic - Ferritic (Duplex)	120	110	100	0,005 x DC	0,004 x DC	0,003 x DC
S	Heat Resistant Super Alloys	40	35	30	0,022 x DC	0,017 x DC	0,014 x DC

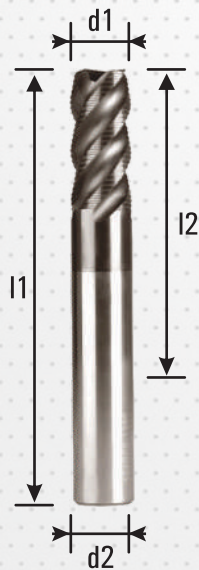


Series : 124RCS - Rough Course Pitch (Std. Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
6	6	16	50	4	124RCS-0600
8	8	20	60	4	124RCS-0800
10	10	25	75	4	124RCS-1000
12	12	30	75	4	124RCS-1200
16	16	40	100	4	124RCS-1600
20	20	45	100	4	124RCS-2000

Application :

- » For Dry and Wet Milling
- » Very High Stock Removal
- » Alloy Steel and Cast Iron

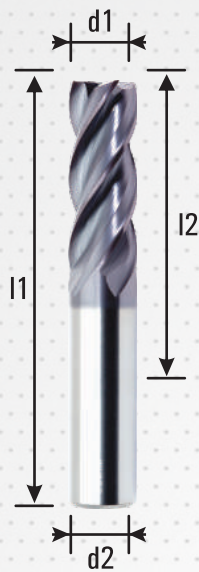


Series : 124RFS - Roughing Fine Pitch (Std. Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
3	6	7	57	4	124RFS-0300
4	6	14	57	4	124RFS-0400
5	6	14	57	4	124RFS-0500
6	6	19	57	4	124RFS-0600
8	8	21	63	4	124RFS-0800
10	10	22	72	4	124RFS-1000
12	12	26	83	4	124RFS-1200
16	16	32	92	5	124RFS-1600
20	20	38	104	6	124RFS-2000

Application :

- » For Dry and Wet Milling
- » Very High Stock Removal
- » Steel upto 30 HRC



Application :

- » Designed for High Feed Rate
- » Side Milling

Series : 124VHS - Variable Helix (Std. Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
3	3	8	50	4	124VHS-0300
4	4	11	50	4	124VHS-0400
5	5	13	50	4	124VHS-0500
6	6	19	57	4	124VHS-0600
8	8	21	63	4	124VHS-0800
10	10	22	72	4	124VHS-1000
12	12	26	80	4	124VHS-1200
14	14	32	92	4	124VHS-1400
16	16	32	92	4	124VHS-1600
18	18	38	104	4	124VHS-1800
20	20	38	104	4	124VHS-2000
22	22	50	104	4	124VHS-2200
25	25	50	104	4	124VHS-2500

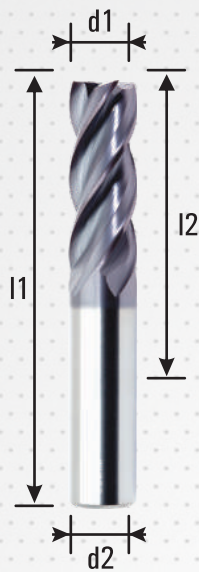


Application :

- » Designed for High Feed Rate
- » Side Milling

Series : 124VHL - Variable Helix (Long. Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
3	3	19	57	4	124VHL-0300
4	4	19	57	4	124VHL-0400
5	5	25	63	4	124VHL-0500
6	6	28	76	4	124VHL-0600
8	8	29	76	4	124VHL-0800
10	10	32	76	4	124VHL-1000
12	12	51	102	4	124VHL-1200
14	14	57	127	4	124VHL-1400
16	16	57	127	4	124VHL-1600
20	20	57	127	4	124VHL-2000
25	25	57	127	4	124VHL-2500

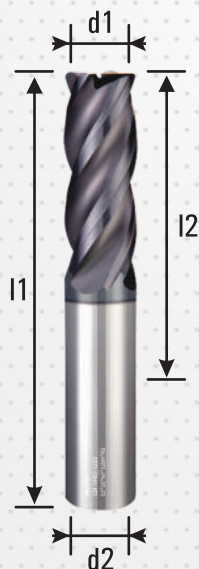


Series : 124VHEL - Variable Helix (Extra Long Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
3	3	25	75	4	124VHEL-0300
4	4	25	75	4	124VHEL-0400
5	5	25	75	4	124VHEL-0500
6	6	40	100	4	124VHEL-0600
8	8	40	100	4	124VHEL-0800
10	10	40	100	4	124VHEL-1000
12	12	75	150	4	124VHEL-1200
14	14	75	150	4	124VHEL-1400
16	16	75	150	4	124VHEL-1600
20	20	75	150	4	124VHEL-2000
25	25	75	150	4	124VHEL-2500

Application :

- » Designed for High Feed Rate
- » Side Milling

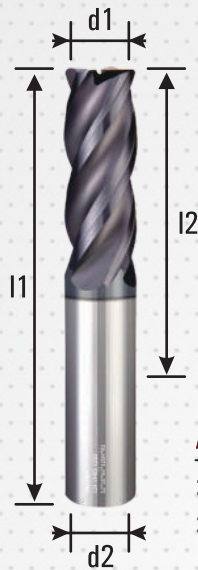


Series : 124VHRS - Variable Helix Corner Radius (Std. Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	Radius	No of Flute	Item Code
3	3	8	50	0.5	4	124VHRS-0305
3	3	8	50	1	4	124VHRS-0310
4	4	11	50	0.5	4	124VHRS-0405
4	4	11	50	1	4	124VHRS-0410
5	5	13	50	0.5	4	124VHRS-0505
5	5	13	50	1	4	124VHRS-0510
6	6	19	57	0.5	4	124VHRS-0605
6	6	19	57	1	4	124VHRS-0610
6	6	19	57	1.5	4	124VHRS-0615
8	8	21	63	0.5	4	124VHRS-0805
8	8	21	63	1	4	124VHRS-0810
8	8	21	63	1.5	4	124VHRS-0815
10	10	22	72	1	4	124VHRS-1010
10	10	22	72	1.5	4	124VHRS-1015
10	10	22	72	2	4	124VHRS-1020

Application :

- » Designed for High Feed Rate
- » Side Milling

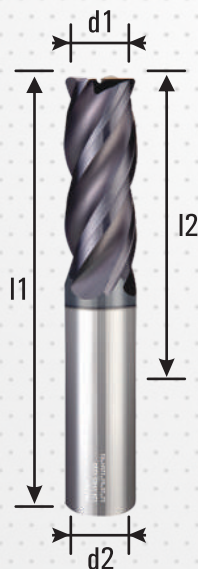


Series : 124VHRS - Variable Helix Corner Radius (Std. Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	Radius	No of Flute	Item Code
12	12	26	83	1	4	124VHRS-1210
12	12	26	83	1.5	4	124VHRS-1215
12	12	26	83	2	4	124VHRS-1220
16	16	32	92	1	4	124VHRS-1610
16	16	32	92	2	4	124VHRS-1620
20	20	38	104	1	4	124VHRS-2010
20	20	38	104	2	4	124VHRS-2020

Application :

- » Designed for High Feed Rate
- » Side Milling

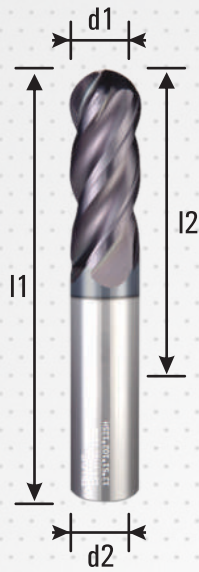


Series : 124VHRL - Variable Helix Corner Radius (Long Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	Radius	No of Flute	Item Code
3	3	19	57	0.5	4	124VHRL-0305
3	3	19	57	1	4	124VHRL-0310
4	4	19	57	0.5	4	124VHRL-0405
4	4	19	57	1	4	124VHRL-0410
5	5	25	63	0.5	4	124VHRL-0505
5	5	25	63	1	4	124VHRL-0510
6	6	28	76	0.5	4	124VHRL-0605
6	6	28	76	1	4	124VHRL-0610
6	6	28	76	1.5	4	124VHRL-0615
8	8	40	100	0.5	4	124VHRL-0805
8	8	40	100	1	4	124VHRL-0810
8	8	40	100	1.5	4	124VHRL-0815
10	10	40	100	1	4	124VHRL-1010
10	10	40	100	1.5	4	124VHRL-1015
10	10	40	100	2	4	124VHRL-1020
12	12	51	102	1	4	124VHRL-1210
12	12	51	102	1.5	4	124VHRL-1215
12	12	51	102	2	4	124VHRL-1220
16	16	57	127	1	4	124VHRL-1610
16	16	57	127	2	4	124VHRL-1620
20	20	57	127	1	4	124VHRL-2010
20	20	57	127	2	4	124VHRL-2020

Application :

- » Designed for High Feed Rate
- » Side Milling

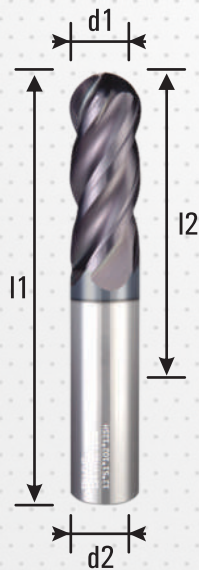


Series : 124VHBS - Variable Helix Ball (Std. Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
3	3	8	50	4	124VHBS-0300
4	4	11	50	4	124VHBS-0400
5	5	13	50	4	124VHBS-0500
6	6	19	57	4	124VHBS-0600
8	8	21	63	4	124VHBS-0800
10	10	22	72	4	124VHBS-1000
12	12	26	83	4	124VHBS-1200
16	16	32	92	4	124VHBS-1600
20	20	38	104	4	124VHBS-2000
25	25	50	104	4	124VHBS-2500

Application :

- » Designed for High Feed Rate
- » Side Milling



Series : 124VHBL - Variable Helix Ball (Long Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
3	3	19	57	4	124VHBL-0300
4	4	19	57	4	124VHBL-0400
5	5	25	63	4	124VHBL-0500
6	6	28	76	4	124VHBL-0600
8	8	40	100	4	124VHBL-0800
10	10	40	100	4	124VHBL-1000
12	12	51	102	4	124VHBL-1200
16	16	57	127	4	124VHBL-1600
20	20	57	127	4	124VHBL-2000

Application :

- » Designed for High Feed Rate
- » Side Milling



Application :

- » Designed for High Feed Rate
- » Side Milling

Series : 124VHS - Variable Helix (Std. Length)

Measurement in Inches

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
3/64	1/8	9/64	1-1/2	4	124VHS-0469
1/16	1/8	3/16	1-1/2	4	124VHS-0625
5/64	1/8	1/4	1-1/2	4	124VHS-0781
3/32	1/8	5/16	1-1/2	4	124VHS-0938
7/64	1/8	3/8	1-1/2	4	124VHS-1094
1/8	1/8	1/2	1-1/2	4	124VHS-1250
9/64	3/16	1/2	2	4	124VHS-1406
5/32	3/16	9/16	2	4	124VHS-1562
11/64	3/16	9/16	2	4	124VHS-1719
3/16	3/16	5/8	2	4	124VHS-1875
13/64	1/4	5/8	2-1/2	4	124VHS-2031
7/32	1/4	5/8	2-1/2	4	124VHS-2188
1/4	1/4	3/4	2-1/2	4	124VHS-2500
9/32	5/16	3/4	2-1/2	4	124VHS-2812
5/16	5/16	13/16	2-1/2	4	124VHS-3125
11/32	3/8	7/8	2-1/2	4	124VHS-3438
3/8	3/8	1	2-1/2	4	124VHS-3750
13/32	7/16	1	2-3/4	4	124VHS-4062
7/16	7/16	1	2-3/4	4	124VHS-4375
1/2	1/2	1	3	4	124VHS-5000
9/16	9/16	1-1/8	3-1/2	4	124VHS-5625
5/8	5/8	1-1/4	3-1/2	4	124VHS-6250
11/16	3/4	1-3/8	4	4	124VHS-6875
3/4	3/4	1-1/2	4	4	124VHS-7500
7/8	7/8	1-1/2	4	4	124VHS-8750
1	1	1-1/2	4	4	124VHS-1000



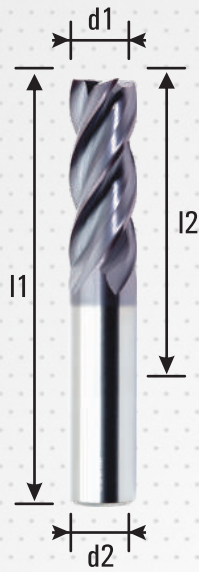
Application :

- » Designed for High Feed Rate
- » Side Milling

Series : 124VHL - Variable Helix (Long Length)

Measurement in Inches

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
1/8	1/8	3/4	2-1/4	4	124VHL-1250
3/16	3/16	3/4	2-1/4	4	124VHL-1875
1/4	1/4	1-1/8	3	4	124VHL-2500
5/16	5/16	1-1/8	3	4	124VHL-3125
3/8	3/8	1-1/8	3	4	124VHL-3750
7/16	7/16	2	4	4	124VHL-4375
1/2	1/2	2	4	4	124VHL-5000
5/8	5/8	2-1/4	5	4	124VHL-6250
3/4	3/4	2-1/4	5	4	124VHL-7500
1	1	2-1/4	5	4	124VHL-1000



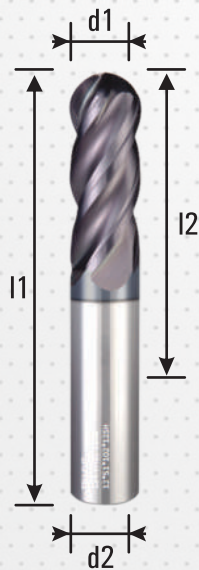
Series : 124VHEL - Variable Helix (Extra Long Length)

Measurement in Inches

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
1/8	1/8	1	3	4	124VHEL-1250
3/16	3/16	1-1/8	3	4	124VHEL-1875
1/4	1/4	1-1/2	4	4	124VHEL-2500
5/16	5/16	1-5/8	4	4	124VHEL-3125
3/8	3/8	1-3/4	4	4	124VHEL-3750
7/16	7/16	3	6	4	124VHEL-4375
1/2	1/2	3	6	4	124VHEL-5000
5/8	5/8	3	6	4	124VHEL-6250
3/4	3/4	3	6	4	124VHEL-7500
1	1	3	6	4	124VHEL-1000

Application :

- » Designed for High Feed Rate
- » Side Milling



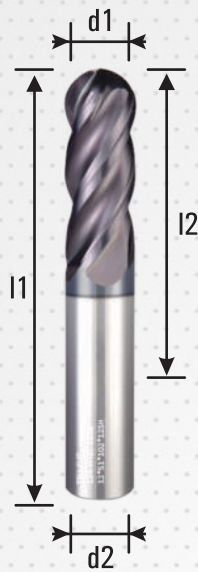
Series : 124VHBL - Variable Helix Ball (Long Length)

Measurement in Inches

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
1/8	1/8	3/4	2-1/4	4	124VHBL-1250
3/16	3/16	3/4	2-1/4	4	124VHBL-1875
1/4	1/4	1-1/8	3	4	124VHBL-2500
5/16	5/16	1-1/8	3	4	124VHBL-3125
3/8	3/8	1-1/8	3	4	124VHBL-3750
7/16	7/16	2	4	4	124VHBL-4375
1/2	1/2	2	4	4	124VHBL-5000
5/8	5/8	2-1/4	5	4	124VHBL-6250
3/4	3/4	2-1/4	5	4	124VHBL-7500
1	1	2-1/4	5	4	124VHBL-1000

Application :

- » Designed for High Feed Rate
- » Side Milling



Application :

- » Designed for High Feed Rate
- » Side Milling

Series : 124VHBS - Variable Helix (Std. Length)

Measurement in Inches

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
3/64	1/8	9/64	1-1/2	4	124VHBS-0469
1/16	1/8	3/16	1-1/2	4	124VHBS-0625
5/64	1/8	1/4	1-1/2	4	124VHBS-0781
3/32	1/8	5/16	1-1/2	4	124VHBS-0938
7/64	1/8	3/8	1-1/2	4	124VHBS-1094
1/8	1/8	1/2	1-1/2	4	124VHBS-1250
9/64	3/16	1/2	2	4	124VHBS-1406
5/32	3/16	9/16	2	4	124VHBS-1562
11/64	3/16	9/16	2	4	124VHBS-1719
3/16	3/16	5/8	2	4	124VHBS-1875
13/64	1/4	5/8	2-1/2	4	124VHBS-2031
7/32	1/4	5/8	2-1/2	4	124VHBS-2188
1/4	1/4	3/4	2-1/2	4	124VHBS-2500
9/32	5/16	3/4	2-1/2	4	124VHBS-2812
5/16	5/16	13/16	2-1/2	4	124VHBS-3125
11/32	3/8	7/8	2-1/2	4	124VHBS-3438
3/8	3/8	1	2-1/2	4	124VHBS-3750
13/32	7/16	1	2-3/4	4	124VHBS-4062
7/16	7/16	1	2-3/4	4	124VHBS-4375
1/2	1/2	1	3	4	124VHBS-5000
9/16	9/16	1-1/8	3-1/2	4	124VHBS-5625
5/8	5/8	1-1/4	3-1/2	4	124VHBS-6250
11/16	3/4	1-3/8	4	4	124VHBS-6875
3/4	3/4	1-1/2	4	4	124VHBS-7500
7/8	7/8	1-1/2	4	4	124VHBS-8750
1	1	1-1/2	4	4	124VHBS-1000



Application :

- » Designed for Keyway Milling
- » Direct Plugging upto 0.5/d1 Possible

Series : 124TS - Turbo Keyway (Std. Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	Radius	No of Flute	Item Code
6	6	19	57	0.5	4	124TS-0600
8	8	21	63	0.5	4	124TS-0800
10	10	22	72	1.0	4	124TS-1000
12	12	26	83	1.5	4	124TS-1200
16	16	32	92	1.5	4	124TS-1600
20	20	38	104	1.5	4	124TS-2000



Series : 123HHS - High Helix (Std. Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
3	3	15	57	3	123HHS-0300
4	4	16	57	3	123HHS-0400
5	5	19	57	3	123HHS-0500
6	6	19	57	3	123HHS-0600
8	8	21	63	3	123HHS-0800
10	10	22	72	3	123HHS-1000
12	12	26	83	3	123HHS-1200
16	16	32	92	3	123HHS-1600
20	20	38	104	3	123HHS-2000

Application :

- » Specially Designed for Semi Finish
- » Suitable for Stainless Steel Machining
- » Excellent Surface Finish



Series : 123HHL - High Helix (Long Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
3	3	20	65	3	123HHL-0300
4	4	22	65	3	123HHL-0400
5	5	30	80	3	123HHL-0500
6	6	30	80	3	123HHL-0600
8	8	40	100	3	123HHL-0800
10	10	50	100	3	123HHL-1000
12	12	50	100	3	123HHL-1200
16	16	60	120	3	123HHL-1600
20	20	60	120	3	123HHL-2000

Application :

- » Specially Designed for Semi Finish
- » Suitable for Stainless Steel Machining
- » Excellent Surface Finish



Series : 124HHS - High Helix (Std. Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
3	3	15	57	4	124HHS-0300
4	4	16	57	4	124HHS-0400
5	5	19	57	4	124HHS-0500
6	6	19	57	4	124HHS-0600
8	8	21	63	4	124HHS-0800
10	10	22	72	4	124HHS-1000
12	12	26	83	4	124HHS-1200
16	16	32	92	4	124HHS-1600
20	20	38	104	4	124HHS-2000

Application :

- » Specially Designed for Finishing
- » Excellent Surface Finish
- » Side Milling

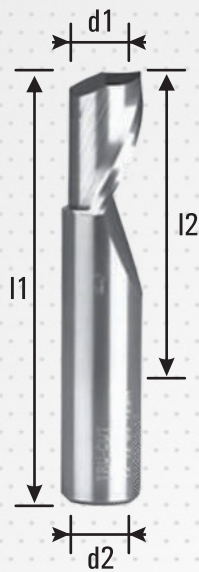


Series : 124HHL - High Helix (Long Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
3	3	20	65	4	124HHL-0300
4	4	22	65	4	124HHL-0400
5	5	30	80	4	124HHL-0500
6	6	30	80	4	124HHL-0600
8	8	40	100	4	124HHL-0800
10	10	50	100	4	124HHL-1000
12	12	50	100	4	124HHL-1200
16	16	60	120	4	124HHL-1600
20	20	60	120	4	124HHL-2000

Application :

- » Specially Designed for Finishing
- » Excellent Surface Finish
- » Side Milling

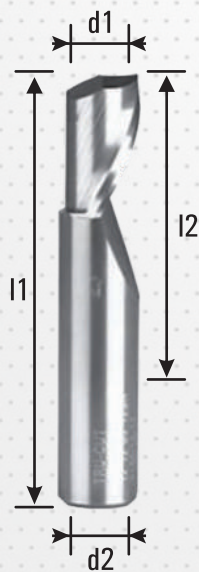


Series : 101ALL - End Mill (Short Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
3	3	14	40	1	101ALL-0300
4	4	15	50	1	101ALL-0400
5	5	16	50	1	101ALL-0500
6	6	18	57	1	101ALL-0600
8	8	20	63	1	101ALL-0800
10	10	22	72	1	101ALL-1000
12	12	26	83	1	101ALL-1200

Application :

- » Aluminium Machining
- » Plastic Machining

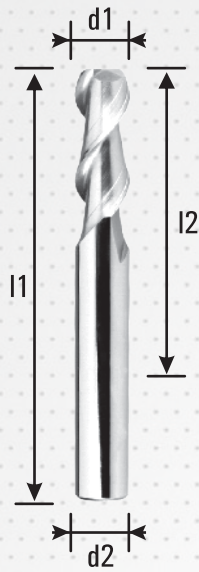


Series : 101ALS - End Mill (Std. Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
3	3	16	65	1	101ALS-0300
4	4	18	65	1	101ALS-0400
5	5	20	65	1	101ALS-0500
6	6	24	68	1	101ALS-0600
8	8	38	88	1	101ALS-0800
10	10	45	100	1	101ALS-1000
12	12	53	110	1	101ALS-1200

Application :

- » Aluminium Machining
- » Plastic Machining

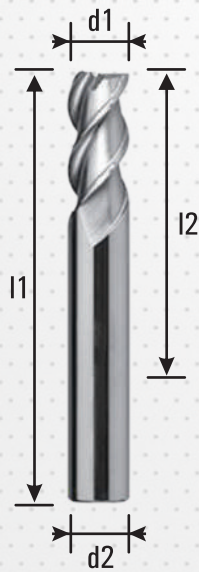


Series : 122ALS - End Mill Aluminium (Std. Length)

d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
3	3	8	50	2	122ALS-0300
4	4	11	50	2	122ALS-0400
5	5	13	50	2	122ALS-0500
6	6	19	57	2	122ALS-0600
8	8	21	63	2	122ALS-0800
10	10	22	72	2	122ALS-1000
12	12	26	83	2	122ALS-1200
16	16	32	92	2	122ALS-1600
20	20	38	104	2	122ALS-2000

Application :

- » Designed for Aluminium Machining
- » High Feed Rate
- » Heavy Stock Removal



Series : 123ALS - End Mill Aluminium (Std. Length)

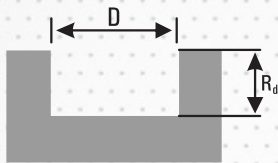
d1 Tool Diameter	d2 Shank Diameter	l2 Length of Cut	l1 Overall Length	No of Flute	Item Code
3	3	8	50	3	123ALS-0300
4	4	11	50	3	123ALS-0400
5	5	13	50	3	123ALS-0500
6	6	19	57	3	123ALS-0600
8	8	21	63	3	123ALS-0800
10	10	22	72	3	123ALS-1000
12	12	26	83	3	123ALS-1200
16	16	32	92	3	123ALS-1600
20	20	38	104	3	123ALS-2000

Application :

- » Designed for Aluminium Machining
- » High Feed Rate

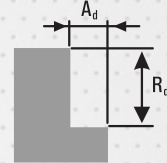
Cutter Diameter	Carbon Steels		Alloy Steels		Stainless Steels		Prehardened Steels	
	RPM	Feed/Tooth	RPM	Feed/Tooth	RPM	Feed/Tooth	RPM	Feed/Tooth
6.0	3840-4800	0.050-0.083	1600-2000	0.050-0.067	1440-1800	0.022-0.056	2400-3000	0.036-0.067
8.0	2880-3600	0.070-0.092	1280-1600	0.062-0.083	1120-1400	0.028-0.065	1760-2200	0.050-0.091
10.0	2400-3000	0.089-0.100	1040-1300	0.051-0.090	880-1100	0.030-0.070	1360-1700	0.039-0.078
12.0	2080-2600	0.095-0.108	880-1100	0.054-0.103	720-900	0.037-0.078	1200-1500	0.040-0.076
16.0	1976-2470	0.072-0.103	850-1050	0.069-0.098	685-855	0.052-0.074	1135-1420	0.050-0.072
20.0	1880-2350	0.069-0.098	795-995	0.065-0.093	650-810	0.049-0.070	1080-1350	0.048-0.068

SLOTTING



$R_d = \emptyset 6\text{mm to } 12\text{mm} - 1.0D$
 $R_d = \emptyset 16\text{mm to } 20\text{mm} - 1.2D$

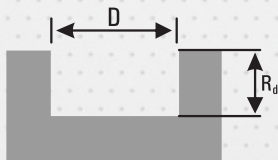
SIDE MILLING



$A_d = 0.3D$
 $R_d = 1.5D$

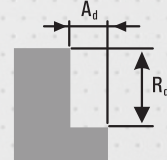
Cutter Diameter	Steels 30HRc		Steels 30-45HRc		Stainless Steels		Steels 45-50HRc		Steels 50-60HRc	
	RPM	Feed/Tooth	RPM	Feed/Tooth	RPM	Feed/Tooth	RPM	Feed/Tooth	RPM	Feed/Tooth
6.0	2000-2500	0.009-0.018	1600-2000	0.009-0.018	1200-1500	0.009-0.018	1040-1300	0.007-0.013	800-1000	0.005-0.010
8.0	1520-1900	0.013-0.026	1200-1500	0.012-0.023	960-1200	0.011-0.023	800-1000	0.008-0.018	640-800	0.006-0.013
10.0	1280-1600	0.015-0.032	1040-1300	0.013-0.027	760-950	0.014-0.029	640-800	0.011-0.022	520-650	0.008-0.015
12.0	1040-1300	0.017-0.035	880-1100	0.015-0.032	640-800	0.017-0.034	536-670	0.013-0.026	424-530	0.009-0.019
16.0	800-1000	0.015-0.030	656-820	0.015-0.030	480-600	0.016-0.033	400-500	0.015-0.025	320-400	0.009-0.019
20.0	640-800	0.014-0.030	520-650	0.013-0.029	384-480	0.018-0.033	320-400	0.012-0.025	256-320	0.009-0.020

SLOTTING



$R_d = \emptyset 6\text{mm to } 12\text{mm} - 0.2D$
 $R_d = \emptyset 16\text{mm to } 20\text{mm} - 0.15D$

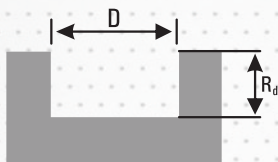
SIDE MILLING



$A_d = 0.5D$
 $R_d = 2.0D$

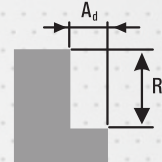
Cutter Diameter	Steels 30HRc		Steels 30-35HRc		Steels 35-45HRc		Steels 45-50HRc	
	RPM	Feed/Tooth	RPM	Feed/Tooth	RPM	Feed/Tooth	RPM	Feed/Tooth
3.0	8500-9900	0.008-0.012	5200-6500	0.008-0.014	4400-5000	0.005-0.010	4200-4800	0.003-0.005
4.0	7500-8700	0.012-0.020	4500-5300	0.010-0.018	3800-4400	0.008-0.013	3200-4000	0.004-0.006
5.0	6400-7600	0.017-0.024	3800-4500	0.015-0.021	3200-3800	0.012-0.017	1900-3200	0.005-0.008
6.0	5300-6400	0.021-0.029	3200-3700	0.018-0.026	2700-3200	0.016-0.022	1600-2700	0.007-0.010
8.0	4000-4800	0.028-0.040	2400-2800	0.026-0.037	2000-2400	0.025-0.035	1200-2000	0.012-0.017
10.0	3200-3800	0.036-0.051	1900-2200	0.033-0.048	1600-1900	0.031-0.045	1000-1600	0.016-0.023
12.0	2700-3200	0.043-0.062	1600-1900	0.039-0.055	1300-1600	0.035-0.050	800-1300	0.020-0.028
16.0	2000-2400	0.056-0.080	1200-1400	0.049-0.069	1000-1200	0.044-0.062	600-1000	0.026-0.037
20.0	1600-1900	0.070-0.100	1000-1100	0.059-0.084	800-1000	0.053-0.075	500-800	0.031-0.043

SLOTTING



$R_d \text{ Min} = 0.6D$
 $R_d \text{ Max} = 10\text{mm}$

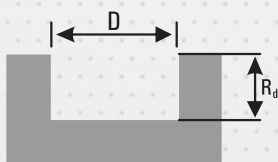
SIDE MILLING



$A_d = 0.5D$
 $R_d = 1.5D$

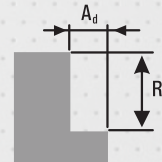
Cutter Diameter	Cast Iron		Mild Steel		Steels 30HRc		Steels 30-38HRc		Steels 38-45HRc	
	RPM	Feed/Tooth	RPM	Feed/Tooth	RPM	Feed/Tooth	RPM	Feed/Tooth	RPM	Feed/Tooth
6.0	5300-6350	0.030-0.040	4500-5300	0.021-0.030	3700-4500	0.014-0.020	2900-3450	0.014-0.020	2400-2650	0.014-0.020
8.0	4000-4750	0.040-0.053	3400-4000	0.028-0.040	2800-3400	0.021-0.030	2200-2600	0.021-0.029	1800-2000	0.021-0.029
10.0	3200-3800	0.050-0.066	2700-3200	0.035-0.050	2250-2700	0.028-0.040	1750-2050	0.028-0.040	1450-1600	0.028-0.040
12.0	2650-3200	0.060-0.081	2250-2650	0.042-0.060	1850-2250	0.035-0.050	1450-1700	0.035-0.050	1200-1350	0.035-0.050
16.0	2000-2400	0.080-0.107	1700-2000	0.056-0.080	1400-1700	0.049-0.071	1100-1300	0.048-0.069	900-1000	0.049-0.069
20.0	1600-1900	0.100-0.133	1350-1600	0.067-0.095	1100-1350	0.061-0.087	900-1050	0.058-0.083	700-800	0.057-0.083

SLOTTING



$R_d \text{ Min} = 0.75D$
 $R_d \text{ Max} = 12\text{mm}$

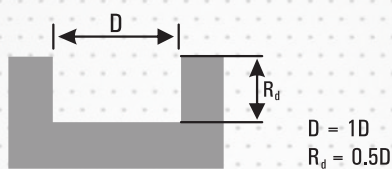
SIDE MILLING



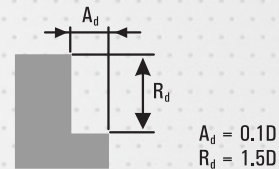
$A_d = 0.6D$
 $R_d = 1.5D$

Cutter Diameter	Aluminum Alloy		Aluminum Alloy Casting < Sil 13%		Copper Alloy C1100	
	RPM	Feed/Tooth	RPM	Feed/Tooth	RPM	Feed/Tooth
5.0	10000-12500	0.020-0.029	10000-12500	0.020-0.029	3800-4750	0.019-0.026
6.0	8400-10500	0.026-0.038	8400-10500	0.026-0.038	3160-3950	0.024-0.034
8.0	6360-7950	0.036-0.055	6360-7950	0.036-0.055	2360-2950	0.036-0.051
10.0	5080-6350	0.051-0.078	5080-6350	0.051-0.078	1880-2350	0.048-0.068
12.0	4240-5300	0.065-0.092	4240-5300	0.065-0.092	1560-1950	0.061-0.087
14.0	3850-4800	0.075-0.110	3850-4800	0.075-0.110	1230-1875	0.072-0.105
16.0	3160-3950	0.087-0.120	3160-3950	0.087-0.120	1160-1450	0.082-0.117
18.0	3010-3780	0.097-0.130	3010-3780	0.097-0.130	1075-1375	0.095-0.120
20.0	2520-3150	0.109-0.134	2520-3150	0.109-0.134	920-1150	0.103-0.148

SLOTTING



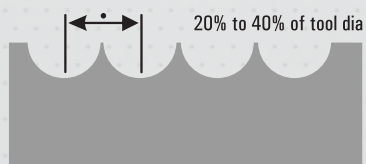
SIDE MILLING



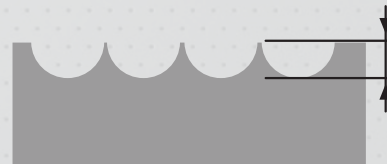
Cutter Diameter	Aluminum Alloys		Plastics		Copper		Alloys	
	RPM	Feed/Tooth	RPM	Feed/Tooth	RPM	Feed/Tooth	RPM	Feed/Tooth
5.0	31190-38830	0.056-0.080	232340-31200	0.112-0.160	15600-23240	0.056-0.080	15600-28970	0.056-0.080
6.0	25990-32360	0.063-0.090	19360-25990	0.126-0.180	12990-19360	0.063-0.090	12990-24140	0.063-0.090
8.0	19500-24270	0.105-0.150	14520-19500	0.182-0.260	9750-14520	0.105-0.150	9750-18100	0.105-0.150
10.0	15600-19420	0.133-0.190	11620-15600	0.217-0.310	7800-11620	0.112-0.160	7800-14480	0.105-0.150
12.0	12990-16180	0.140-0.200	9680-12990	0.273-0.390	6500-9680	0.140-0.200	6500-12070	0.140-0.200
14.0	11140-13870	0.154-0.220	8300-11140	0.308-0.440	5570-8300	0.154-0.220	5570-10350	0.154-0.220
16.0	9750-12140	0.161-0.230	7260-9750	0.329-0.470	4870-7260	0.161-0.230	4870-9050	0.161-0.230
18.0	8800-10150	0.170-0.250	6300-8200	0.350-0.520	4150-6500	0.170-0.250	4150-7500	0.075-0.260
20.0	7800-9710	0.196-0.280	5810-7800	0.399-0.570	3900-5810	0.196-0.280	3900-7240	0.196-0.280

Cutter Diameter	Unalloyed Steel Over 23 N/mm ²		Alloyed Steel Over 38 N/mm ²		Stainless Steel To 22 N/mm ²		Titanium - Alloyed To 44 N/mm ²	
	RPM	Feed/Tooth	RPM	Feed/Tooth	RPM	Feed/Tooth	RPM	Feed/Tooth
5.0	8276-12732	0.015-0.025	5093-7003	0.015-0.025	5730-7003	0.020-0.025	2546-4456	0.015-0.025
6.0	6897-10610	0.025-0.035	4244-5836	0.025-0.035	4775-5836	0.032-0.035	2122-3714	0.025-0.035
8.0	5173-7958	0.030-0.070	3183-4377	0.030-0.070	3581-4377	0.040-0.070	1592-2785	0.030-0.070
10.0	4138-6366	0.038-0.090	2546-3501	0.038-0.090	2865-3501	0.050-0.090	1273-2228	0.038-0.090
12.0	3448-5305	0.046-0.100	2122-2918	0.046-0.100	2387-2918	0.065-0.100	1061-1857	0.046-0.100
16.0	2586-3979	0.052-0.110	1592-2188	0.052-0.110	1790-2188	0.073-0.110	796-1393	0.052-0.110
20.0	2069-3183	0.060-0.120	1273-1751	0.060-0.120	1432-1751	0.081-0.120	637-1114	0.060-0.120

Radial Step Over

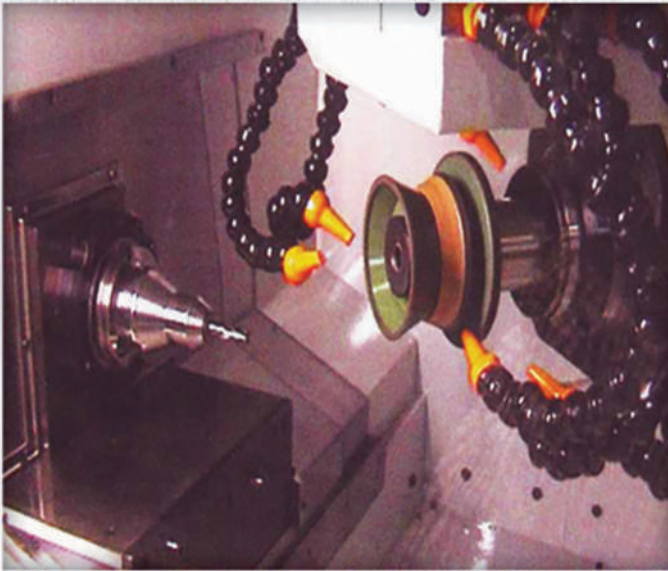


Axial Depth



30-40 HRc Axial Depth = 10% of tool diameter
 40-50 HRc Axial Depth = 5% of tool diameter
 50-60 HRc Axial Depth = 4% of tool diameter

Let us put your **Used Tool** **Back to Work** with same tool performance



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**Professional Tool Re-Grinding &
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