



Bright (Uncoated) Finish
2 Flutes
35CG32



Solid Carbide Tools

WIDIA HANITA



MICRO 100
super carbide tools



High-Performance Roughing/Finishing Carbide Ball End Mills

Milling Dia.	Length of Cut	Overall Length	Shank Dia.	Helix Angle	Brand	Item No.
AITin Finish						
2 Flutes						
0.375 in	3/8 in	4 in	3/8 in	30 °	SGS Tool	41AW55
3 Flutes						
0.25 in	3/4 in	2.5 in	1/4 in	30 °	—	55HL33
0.5 in	1 in	3 in	1/2 in	30 °	—	55HL41
0.75 in	1 1/2 in	4 in	3/4 in	30 °	—	55HL45
1 in	1 1/2 in	4 in	1 in	30 °	—	55HL27
4 Flutes						
0.1875 in	3/8 in	2 in	3/16 in	30 °	—	55HK90
0.375 in	1 in	2.5 in	3/8 in	30 °	—	55HK96
0.25 in	1 1/2 in	4 in	1 in	30 °	—	55HK86
6 Flutes						
0.25 in	0 in	2.5 in	1/4 in	20 °	Widia Hanita	287NW9
0.375 in	3/16 in	3.5 in	3/8 in	20 °	Widia Hanita	287NX0
0.5 in	3/16 in	4 in	1/2 in	20 °	Widia Hanita	48JN91
0.5 in	3/16 in	4 in	1/2 in	20 °	Widia Hanita	287NX1
0.625 in	1/32 in	4.5 in	3/8 in	20 °	Widia Hanita	287NX2
0.75 in	1/32 in	5 in	3/4 in	20 °	Widia Hanita	287NX3
0.5 in	3/8 in	4 in	1/2 in	20 °	Widia Hanita	48JN82
0.625 in	3/8 in	4.5 in	3/8 in	20 °	Widia Hanita	48JN86
1 in	3/4 in	5.5 in	1 in	20 °	Widia Hanita	287NX4
Bright (Uncoated) Finish						
2 Flutes						
0.125 in	3/16 in	2.5 in	1/8 in	15 °	OSG	35CY68
0.25 in	1/4 in	2.5 in	1/4 in	20 °	Micro 100	54ET71
0.25 in	1/4 in	3 in	1/4 in	20 °	Micro 100	54ET65
0.1875 in	3/32 in	4 in	3/16 in	15 °	OSG	35CY70
0.125 in	3/8 in	1.5 in	1/8 in	30 °	OSG	35CG32
0.25 in	3/8 in	4 in	1/4 in	15 °	OSG	35CY73
0.375 in	3/8 in	4 in	3/8 in	15 °	OSG	35CY76
0.5 in	3/4 in	5 in	1/2 in	15 °	OSG	35CY81
0.625 in	15/16 in	6 in	3/4 in	15 °	OSG	35CY84
0.75 in	1 1/8 in	6 in	3/4 in	15 °	OSG	35CY87
1 in	1 1/2 in	6 in	1 in	15 °	OSG	35CY66
4 mm	6 mm	63 mm	4 mm	15 °	OSG	35CY69
5 mm	7.5 mm	63 mm	5 mm	15 °	OSG	35CY71
6 mm	9 mm	100 mm	6 mm	15 °	OSG	35CY72
8 mm	12 mm	100 mm	8 mm	15 °	OSG	35CY75
10 mm	15 mm	100 mm	10 mm	15 °	OSG	35CY77
11 mm	16.5 mm	127 mm	11 mm	15 °	OSG	35CY78
12 mm	18 mm	127 mm	12 mm	15 °	OSG	35CY80
14 mm	21 mm	127 mm	14 mm	15 °	OSG	35CY82
16 mm	24 mm	152 mm	16 mm	15 °	OSG	35CY85
18 mm	27 mm	152 mm	18 mm	15 °	OSG	35CY86
20 mm	30 mm	152 mm	20 mm	15 °	OSG	35CY88
3 Flutes						
0.1875 in	3/8 in	2 in	3/16 in	30 °	OSG	35CG33
1 in	1 1/2 in	4 in	1 in	30 °	—	55HL26
4 Flutes						
0.125 in	3/8 in	1.5 in	1/8 in	38 °	Cleveland	32ZX11
0.125 in	1/2 in	1.5 in	1/8 in	30 °	—	55HK87
0.1875 in	3/8 in	2 in	3/16 in	30 °	—	55HK89
0.5 in	3/8 in	2.5 in	1/2 in	38 °	Cleveland	32ZX17
0.375 in	3/8 in	2.5 in	1/4 in	38 °	Cleveland	32ZX18
0.375 in	1 in	2.5 in	3/8 in	38 °	Cleveland	32ZX16
0.5 in	1 1/4 in	3 in	1/2 in	30 °	OSG	33PA43
0.625 in	1 3/8 in	3.5 in	3/4 in	30 °	OSG	33PA44
0.625 in	1 1/4 in	3.5 in	3/8 in	30 °	OSG	35CG36
0.625 in	1 1/4 in	3.5 in	3/8 in	38 °	Cleveland	32ZX19
0.75 in	1 3/8 in	4 in	3/4 in	30 °	OSG	33PA45
0.75 in	1 1/2 in	4 in	3/4 in	38 °	Cleveland	32ZX20

Milling Dia.	Length of Cut	Overall Length	Shank Dia.	Helix Angle	Brand	Item No.
0.25 in	1 1/2 in	4 in	1 in	30 °	—	55HK85
1 in	2 in	5 in	1 in	30 °	OSG	35CG37
1 in	2 1/4 in	5 in	1 in	38 °	Cleveland	32ZX21
TIAlN Finish						
2 Flutes						
0.125 in	1/8 in	3 in	1/4 in	30 °	OSG	35CL69
0.1875 in	3/16 in	4 in	1/4 in	30 °	OSG	35CL44
0.125 in	7/32 in	3 in	1/4 in	30 °	OSG	35CL11
0.125 in	1/4 in	3 in	1/4 in	30 °	OSG	35CK72
0.1875 in	1/8 in	3.5 in	3/16 in	30 °	OSG	35CL14
0.1875 in	3/8 in	3 in	1/4 in	30 °	OSG	35CK77
0.375 in	1/32 in	4 in	1/2 in	30 °	OSG	35CL21
0.375 in	3/4 in	4 in	3/8 in	30 °	OSG	35CK89
0.5 in	1 in	4 in	1/2 in	30 °	OSG	35CK93
3.5 mm	3.5 mm	50 mm	6 mm	30 °	OSG	35CL70
3.5 mm	3.5 mm	70 mm	6 mm	30 °	OSG	35CL42
3.5 mm	8 mm	70 mm	6 mm	30 °	OSG	35CK73
4 mm	4 mm	50 mm	6 mm	30 °	OSG	35CL71
4 mm	8 mm	90 mm	6 mm	30 °	OSG	35CL13
4.5 mm	10 mm	80 mm	6 mm	30 °	OSG	35CK76
5 mm	5 mm	80 mm	6 mm	30 °	OSG	35CL45
5 mm	10 mm	110 mm	8 mm	30 °	OSG	35CL16
5.5 mm	12 mm	90 mm	6 mm	30 °	OSG	35CK79
6 mm	6 mm	50 mm	6 mm	30 °	OSG	35CL74
6 mm	6 mm	90 mm	6 mm	30 °	OSG	35CL46
6 mm	12 mm	90 mm	8 mm	30 °	OSG	35CL17
6.5 mm	14 mm	90 mm	8 mm	30 °	OSG	35CK81
7 mm	14 mm	90 mm	8 mm	30 °	OSG	35CK82
8 mm	14 mm	120 mm	10 mm	30 °	OSG	35CL20
8.5 mm	18 mm	100 mm	10 mm	30 °	OSG	35CK86
9 mm	18 mm	100 mm	10 mm	30 °	OSG	35CK87
9.5 mm	18 mm	100 mm	10 mm	30 °	OSG	35CK88
10 mm	18 mm	100 mm	10 mm	30 °	OSG	35CK90
10 mm	18 mm	130 mm	12 mm	30 °	OSG	35CL23
11 mm	22 mm	100 mm	12 mm	30 °	OSG	35CK91
12 mm	22 mm	110 mm	12 mm	30 °	OSG	35CK92
13 mm	26 mm	110 mm	16 mm	30 °	OSG	35CK94
14 mm	26 mm	110 mm	16 mm	30 °	OSG	35CK95
15 mm	30 mm	110 mm	16 mm	30 °	OSG	35CK96
16 mm	30 mm	140 mm	16 mm	30 °	OSG	35CK97
18 mm	34 mm	140 mm	20 mm	30 °	OSG	35CK98
20 mm	38 mm	160 mm	20 mm	30 °	OSG	35CK99
25 mm	50 mm	180 mm	25 mm	30 °	OSG	35CL01
4 Flutes						
0.1875 in	1/8 in	2 in	3/16 in	38 °	Cleveland	33GE67
0.125 in	1/2 in	2 in	1/8 in	38 °	Widia Hanita	48HZ27
0.375 in	1/2 in	4 in	3/8 in	38 °	Widia Hanita	48JE15
0.1875 in	3/8 in	2.2 in	3/16 in	35 °	OSG	35CJ01
0.5 in	3/8 in	2.5 in	1/2 in	38 °	Cleveland	33GE72
0.5 in	3/8 in	5 in	1/2 in	38 °	Widia Hanita	48JE16
0.25 in	3/4 in	2.5 in	1/4 in	38 °	Widia Hanita	48HZ29
0.3125 in	3/4 in	2.5 in	3/16 in	38 °	Widia Hanita	48HZ30
0.625 in	3/4 in	6 in	3/8 in	38 °	Widia Hanita	48JE17
0.375 in	1/8 in	2.5 in	1/8 in	35 °	OSG	35CJ04
0.5 in	1 1/4 in	3 in	1/2 in	35 °	OSG	35CJ07
0.5 in	1 in	3 in	1/2 in	35 °	OSG	35CJ06
0.625 in	1 1/4 in	3.5 in	3/8 in	38 °	Cleveland	33GE74
0.75 in	1 1/2 in	4 in	3/4 in	35 °	OSG	35CJ09
0.75 in	1 in	6 in	3/4 in	38 °	Widia Hanita	48JE18
1 in	1 1/2 in	4 in	1 in	35 °	OSG	35CH97
1 in	1 1/8 in	6 in	1 in	38 °	Widia Hanita	48JE19
1.25 in	2 1/4 in	5 in	1 1/4 in	35 °	OSG	35CH98
1 in	2 1/4 in	5 in	1 in	38 °	Cleveland	33GE76



Bright (Uncoated)
2 Flutes
36NW20



super carbide tools



CLEVELAND



ONSRUD CUTTER LP



super carbide tools



General Purpose Finishing Carbide Ball End Mills

Milling Dia.	Length of Cut	Overall Length	Shank Dia.	Helix Angle	Brand	Item No.
Bright (Uncoated)						
2 Flutes						
0.25 in	3/8 in	3 in	1/4 in	30 °	Micro 100	14K673
0.125 in	1/4 in	1.5 in	1/8 in	35 °	Cleveland	33FX59
0.1875 in	3/8 in	2 in	3/16 in	35 °	Cleveland	33FX66
0.25 in	3/8 in	2 in	1/4 in	40 °	Onsrud	4XYU3
0.5 in	25/64 in	4 in	1/2 in	30 °	Micro 100	14K691
0.125 in	1/2 in	1.5 in	1/8 in	35 °	Cleveland	33FX60
0.1562 in	1/2 in	2 in	3/16 in	30 °	—	36PC17
0.25 in	1/2 in	2 in	1/4 in	35 °	Cleveland	33FX73
0.3125 in	1/2 in	2 in	3/16 in	35 °	Cleveland	33FX80
0.375 in	1/2 in	2.5 in	3/8 in	40 °	Onsrud	4XYU7
0.375 in	1/2 in	4 in	3/8 in	40 °	Onsrud	4XZK1
0.375 in	1/2 in	5 in	3/8 in	40 °	Onsrud	4XZK5
0.1562 in	3/8 in	2 in	3/16 in	35 °	Cleveland	33FX64
0.1875 in	3/8 in	2 in	3/16 in	35 °	Cleveland	33FX67
0.2031 in	3/8 in	2.5 in	1/4 in	35 °	Cleveland	33FX70
0.375 in	3/8 in	2 in	3/8 in	35 °	Cleveland	33FX84
0.5 in	3/8 in	2.5 in	1/2 in	35 °	Cleveland	33FX93
0.5 in	3/8 in	3 in	1/2 in	40 °	Onsrud	4XYV1
0.5 in	3/8 in	4 in	1/2 in	40 °	Onsrud	4XZK4
0.75 in	3/8 in	5 in	3/4 in	40 °	Onsrud	4XZP4
0.125 in	3/4 in	2.5 in	1/8 in	30 °	—	36NU22
0.125 in	3/4 in	2.2 in	1/8 in	35 °	Cleveland	33FX61
0.1875 in	3/4 in	2.5 in	3/16 in	35 °	Cleveland	33FX68
0.25 in	3/4 in	2.5 in	1/4 in	30 °	OSG	2TXN6
0.25 in	3/4 in	2.5 in	1/4 in	35 °	Cleveland	33FX74
0.25 in	3/4 in	2 in	1/4 in	40 °	Onsrud	4XYW6

Milling Dia.	Length of Cut	Overall Length	Shank Dia.	Helix Angle	Brand	Item No.
0.125 in	¾ in	3 in	⅛ in	30 °	—	36NU30
0.625 in	¾ in	6 in	⅜ in	40 °	Onsrud	4XZT2
0.3125 in	1⅜ in	2.5 in	⅝ in	30 °	OSG	30L874
0.3125 in	⅞ in	2.5 in	⅝ in	35 °	Cleveland	33FX81
0.375 in	⅞ in	2.5 in	⅝ in	30 °	—	36NY98
0.25 in	1 ¼ in	2.5 in	¼ in	40 °	Onsrud	4XYH8
0.375 in	1 in	2.5 in	⅝ in	30 °	OSG	2TXP1
0.4062 in	1 in	2.7 in	⅛ in	30 °	OSG	30L905
0.1875 in	1 ⅛ in	3 in	⅜ in	35 °	Cleveland	33FX69
0.25 in	1 ⅛ in	3 in	¼ in	35 °	Cleveland	33FX75
0.3125 in	1 ⅛ in	3 in	⅝ in	35 °	Cleveland	33FX82
0.375 in	1 ⅛ in	3 in	⅝ in	35 °	Cleveland	33FX86
0.5 in	1 in	3 in	½ in	30 °	OSG	2TXP5
0.4531 in	1 in	3 in	½ in	30 °	OSG	30L919
0.5156 in	1 ⅛ in	3.5 in	⅝ in	30 °	—	36NX33
0.625 in	1 ¼ in	3.5 in	⅝ in	30 °	OSG	30L938
0.625 in	1 ¼ in	3.5 in	⅝ in	35 °	Cleveland	33FY01
0.75 in	1 in	3 in	¾ in	40 °	Onsrud	4XYH8
0.1875 in	1 ⅛ in	4 in	⅜ in	30 °	—	36NW20
0.25 in	1 ½ in	4 in	¼ in	30 °	—	36NR72
0.25 in	1 ½ in	4 in	¼ in	35 °	Cleveland	33FX76
0.3125 in	1 ⅝ in	4 in	⅝ in	30 °	—	36PA40
0.375 in	1 ¾ in	4 in	⅝ in	35 °	Cleveland	33FX87
0.375 in	1 ½ in	4 in	⅝ in	40 °	Onsrud	4XY22
0.5 in	1 ½ in	4 in	½ in	30 °	—	36NN90
0.5 in	1 in	4 in	½ in	30 °	—	36NP07