

1-800-GRAINGER (472-4643)



**High-Performance Roughing/
Finishing Carbide Square End Mills**

**AlTiN Finish
6 Flutes
48LM70**



Milling Dia.	Length of Cut	Overall Length	Shank Dia.	Shank Type	Helix Angle	Brand	Item No.
AlTiN Finish 4 Flutes							
1/4 in	3/4 in	2 in	1/4 in	Straight	38°	Widia Hanita	458R90
1/4 in	3/4 in	2 1/2 in	1/4 in	Straight	30°	SGS Tool	41CG12
1/4 in	1 1/4 in	3 1/4 in	1/4 in	Straight	38°	Widia Hanita	48HZ93
1/4 in	1 1/2 in	4 in	1/4 in	Straight	30°	SGS Tool	41CC54
3/8 in	1 in	2 1/2 in	3/8 in	Straight	38°	Widia Hanita	48HZ56
3/8 in	1 in	2 1/2 in	3/8 in	Straight	30°	SGS Tool	41CC72
3/8 in	1 1/8 in	3 in	3/8 in	Straight	30°	SGS Tool	41CA22
3/8 in	1 1/2 in	4 in	3/8 in	Straight	38°	Widia Hanita	48HZ98
1/2 in	1 in	2 1/2 in	1/2 in	Weldon Flat	38°	Widia Hanita	48JA29
1/2 in	1 in	3 in	1/2 in	Weldon Flat	38°	Widia Hanita	48HZ61
1/2 in	1 1/4 in	3 1/4 in	1/2 in	Straight	41°	SGS Tool	41AX14
1/2 in	2 in	4 in	1/2 in	Weldon Flat	38°	Widia Hanita	48JA03
1/2 in	2 1/2 in	4 1/2 in	1/2 in	Weldon Flat	38°	Widia Hanita	48JA44
3/4 in	1 1/2 in	3 1/2 in	3/4 in	Weldon Flat	38°	Widia Hanita	48JA38
3/4 in	1 1/2 in	4 in	3/4 in	Weldon Flat	38°	Widia Hanita	48HZ79
3/4 in	1 3/4 in	4 in	3/4 in	Straight	38°	Widia Hanita	287R97
3/4 in	1 in	7 in	3/4 in	Straight	38°	Widia Hanita	48JE61
3/4 in	2 1/4 in	5 in	3/4 in	Straight	38°	Widia Hanita	287R98
3/4 in	3 in	6 in	3/4 in	Weldon Flat	38°	Widia Hanita	48JA51
1 in	1 1/2 in	4 in	1 in	Weldon Flat	38°	Widia Hanita	48HZ86
1 1/4 in	2 1/4 in	5 in	1 1/4 in	Weldon Flat	38°	Widia Hanita	48HZ90
1 in	3 in	6 in	1 in	Straight	38°	Widia Hanita	287R91
5 Flutes							
1/4 in	3/4 in	2 in	1/4 in	Straight	38°	Widia Hanita	430F43
1/4 in	1/2 in	2 in	1/4 in	Straight	45°	Micro 100	16F223
1/4 in	5/8 in	4 in	1/4 in	Straight	38°	Widia Hanita	430G43
1/4 in	3/4 in	2 1/2 in	1/4 in	Straight	38°	Widia Hanita	48GV03
3/8 in	7/8 in	2 1/2 in	3/8 in	Straight	38°	Widia Hanita	48GV11
1/2 in	3/4 in	2 1/2 in	1/2 in	Weldon Flat	38°	Widia Hanita	430F77
1/2 in	5/8 in	6 in	1/2 in	Weldon Flat	38°	Widia Hanita	430G72
1/2 in	1 1/4 in	3 in	1/2 in	Straight	38°	Widia Hanita	48GV22
1/2 in	1 in	3 in	1/2 in	Straight	38°	Widia Hanita	430F81
1/2 in	1 3/8 in	4 in	1/2 in	Straight	38°	Widia Hanita	430F91
1/2 in	2 1/8 in	4 in	1/2 in	Straight	38°	Widia Hanita	287R99
3/4 in	1 in	3 in	3/4 in	Straight	45°	SGS Tool	41AV23
3/4 in	1 1/2 in	4 in	3/4 in	Weldon Flat	38°	Widia Hanita	48JH02
3/4 in	1 in	4 in	3/4 in	Straight	38°	Widia Hanita	430G84
3/4 in	1 1/2 in	6 in	3/4 in	Weldon Flat	38°	Widia Hanita	430G89
3/4 in	1 1/2 in	7 in	3/4 in	Weldon Flat	38°	Widia Hanita	430G95
1 in	1 3/4 in	4 1/2 in	1 in	Weldon Flat	38°	Widia Hanita	48JH12
1 in	1 1/4 in	4 in	1 in	Straight	38°	Widia Hanita	430G96
1 in	3 1/4 in	6 in	1 in	Weldon Flat	38°	Widia Hanita	430G32
1 1/4 in	3 1/4 in	6 in	1 1/4 in	Weldon Flat	38°	Widia Hanita	430G36
1 1/4 in	5 in	8 in	1 1/4 in	Weldon Flat	38°	Widia Hanita	430G38
4.00 mm	8.00 mm	57.00 mm	6.00 mm	Straight	45°	Micro 100	16F249
4.00 mm	11.00 mm	55.00 mm	6.00 mm	Straight	38°	Widia Hanita	48LA99
5.00 mm	10.00 mm	57.00 mm	6.00 mm	Straight	45°	Micro 100	16F253
6.00 mm	10.00 mm	57.00 mm	6.00 mm	Straight	45°	Micro 100	16F257
8.00 mm	16.00 mm	63.00 mm	8.00 mm	Straight	45°	Micro 100	16F261
8.00 mm	19.00 mm	63.00 mm	8.00 mm	Straight	38°	Widia Hanita	48LC10
8.00 mm	19.00 mm	76.00 mm	8.00 mm	Straight	38°	Widia Hanita	48LC45
10.00 mm	19.00 mm	72.00 mm	10.00 mm	Straight	45°	Micro 100	16F265
10.00 mm	22.00 mm	72.00 mm	10.00 mm	Straight	38°	Widia Hanita	48LC15
10.00 mm	22.00 mm	76.00 mm	10.00 mm	Straight	38°	Widia Hanita	48LD09
12.00 mm	26.00 mm	83.00 mm	12.00 mm	Weldon Flat	38°	Widia Hanita	48JZ03
12.00 mm	26.00 mm	83.00 mm	12.00 mm	Straight	38°	Widia Hanita	48LC18
16.00 mm	32.00 mm	92.00 mm	16.00 mm	Straight	38°	Widia Hanita	48LC24
20.00 mm	38.00 mm	104.00 mm	20.00 mm	Weldon Flat	38°	Widia Hanita	48JY90
25.00 mm	45.00 mm	135.00 mm	25.00 mm	Straight	38°	Widia Hanita	48LD43
6 Flutes							
6.00 mm	10.00 mm	54.00 mm	6.00 mm	Weldon Flat	45°	Widia Hanita	48LM70
8.00 mm	12.00 mm	58.00 mm	8.00 mm	Weldon Flat	45°	Widia Hanita	48LM71
10.00 mm	14.00 mm	66.00 mm	10.00 mm	Weldon Flat	45°	Widia Hanita	48LM72
12.00 mm	16.00 mm	73.00 mm	12.00 mm	Weldon Flat	45°	Widia Hanita	48LM73
14.00 mm	26.00 mm	83.00 mm	14.00 mm	Weldon Flat	45°	Widia Hanita	48LM82
16.00 mm	32.00 mm	92.00 mm	16.00 mm	Weldon Flat	45°	Widia Hanita	48LM83
20.00 mm	38.00 mm	92.00 mm	20.00 mm	Weldon Flat	45°	Widia Hanita	48LM77
Bright (Uncoated) Finish							
5 Flutes							
1/4 in	1/2 in	2 1/2 in	1/4 in	Weldon Flat	Variable	Micro 100	54FE29
1/4 in	1/2 in	4 in	1/4 in	Weldon Flat	Variable	Micro 100	54FE13
5/8 in	1 1/2 in	2 1/2 in	5/8 in	Weldon Flat	Variable	Micro 100	54FE31
5/8 in	1 3/8 in	4 in	5/8 in	Weldon Flat	Variable	Micro 100	54FE15
3/8 in	1 1/4 in	3 in	3/8 in	Weldon Flat	Variable	Micro 100	54FE23
3/8 in	1 1/4 in	3 in	3/8 in	Weldon Flat	Variable	Micro 100	54FE17
1/2 in	3/4 in	3 in	1/2 in	Weldon Flat	Variable	Micro 100	54FE25
1/2 in	1 in	3 in	1/2 in	Weldon Flat	Variable	Micro 100	54FE35
1/2 in	1 3/4 in	4 1/2 in	1/2 in	Weldon Flat	Variable	Micro 100	54FE27
1/2 in	1 in	6 in	1/2 in	Weldon Flat	Variable	Micro 100	54FE19
3/4 in	1 in	3 in	3/4 in	Straight	38°	Cleveland	61KY57
3/4 in	1 1/2 in	4 in	3/4 in	Straight	38°	Cleveland	61KY58
3/4 in	1 1/2 in	4 in	3/4 in	Weldon Flat	Variable	Micro 100	54FE11
3/4 in	2 1/4 in	5 in	3/4 in	Straight	38°	Cleveland	61KY59
1 in	1 1/2 in	4 in	1 in	Straight	38°	Cleveland	61KY60
1 in	2 1/4 in	5 in	1 in	Straight	38°	Cleveland	61KY61
1 in	3 in	6 in	1 in	Straight	38°	Cleveland	61KY62
TiAlN Finish							
2 Flutes							
1/4 in	3/4 in	2 1/2 in	1/4 in	Straight	35°	OSG	30L363
3/8 in	1 in	2 1/2 in	3/8 in	Straight	35°	OSG	30L367
1/2 in	1 in	3 in	1/2 in	Straight	35°	OSG	30L370
3 Flutes							
1/4 in	3/4 in	2 1/2 in	1/4 in	Straight	60°	OSG	35CJ19
3/8 in	1 in	2 1/2 in	3/8 in	Straight	60°	OSG	35CJ22
1/2 in	1 in	3 in	1/2 in	Straight	60°	OSG	35CJ26

Milling Dia.	Length of Cut	Overall Length	Shank Dia.	Shank Type	Helix Angle	Brand	Item No.
4 Flutes							
3/4 in	3/4 in	1 1/2 in	3/4 in	Straight	35°	OSG	30L376
3/4 in	3/4 in	3 in	3/4 in	Straight	30°	OSG	35CQ26
1/2 in	1/4 in	1 1/2 in	1/2 in	Straight	38°	Cleveland	33GD60
1/2 in	3/8 in	1 1/2 in	1/2 in	Straight	35°	OSG	30L457
1/2 in	3/8 in	1 1/2 in	1/2 in	Straight	Variable	YG-1 Tool Company	33TR35
1/2 in	1/2 in	1 1/2 in	1/2 in	Straight	35°	OSG	30L382
1/2 in	1/2 in	1 1/2 in	1/2 in	Straight	50°	OSG	35CJ36
1/2 in	1/2 in	2 in	1/2 in	Straight	38°	Widia Hanita	48JA62
1/2 in	3/8 in	2 in	1/2 in	Straight	38°	Widia Hanita	48JC67
1/2 in	3/8 in	4 in	1/2 in	Straight	38°	Widia Hanita	48JE21
1/2 in	7/8 in	2 1/2 in	1/2 in	Straight	35°	OSG	30L459
1/2 in	1/2 in	2 in	1/2 in	Straight	38°	Cleveland	33GD72
1/2 in	3/4 in	2 1/2 in	1/2 in	Straight	30°	OSG	30L746
1/2 in	3/4 in	2 1/2 in	1/2 in	Straight	38°	Cleveland	33GD74
1/2 in	3/4 in	2 1/2 in	1/2 in	Straight	38°	Widia Hanita	48JA71
1/2 in	1 1/4 in	3 in	1/2 in	Straight	38°	Cleveland	33GD79
1/2 in	1 1/4 in	3 1/4 in	1/2 in	Straight	38°	Widia Hanita	48JC20
3/4 in	1 3/4 in	4 in	3/4 in	Straight	38°	Widia Hanita	48JC43
3/4 in	1 1/2 in	2 1/2 in	3/4 in	Straight	35°	OSG	30L465
3/4 in	1 1/2 in	2 in	3/4 in	Straight	38°	Widia Hanita	48JC73
3/4 in	1 1/2 in	4 in	3/4 in	Straight	38°	Widia Hanita	48JE23
3/4 in	7/8 in	2 1/2 in	3/4 in	Straight	38°	Cleveland	33GD88
3/4 in	7/8 in	2 1/2 in	3/4 in	Straight	38°	Widia Hanita	48JA82
3/4 in	1 in	2 1/2 in	3/4 in	Straight	35°	OSG	30L393
3/4 in	1 1/2 in	3 in	3/4 in	Straight	38°	Cleveland	33GD90
3/4 in	1 1/2 in	4 in	3/4 in	Straight	35°	OSG	30L469
3/4 in	1 1/2 in	4 in	3/4 in	Weldon Flat	35°	OSG	30L470
3/4 in	2 1/2 in	4 in	3/4 in	Straight	35°	OSG	30L471
3/4 in	2 1/2 in	4 in	3/4 in	Straight	38°	Widia Hanita	48JC48
3/4 in	1 1/2 in	2 1/2 in	3/4 in	Straight	38°	Widia Hanita	48JA84
3/4 in	1 in	2 3/4 in	3/4 in	Straight	35°	OSG	30L395
3/4 in	1 in	2 3/4 in	3/4 in	Weldon Flat	35°	OSG	30L474
3/4 in	1 in	2 3/4 in	3/4 in	Straight	35°	OSG	30L473
3/4 in	3/8 in	2 1/2 in	1/2 in	Weldon Flat	38°	Widia Hanita	48JC79
3/4 in	3/8 in	5 in	1/2 in	Straight	38°	Widia Hanita	48JE25
3/4 in	1 1/4 in	3 in	1/2 in	Straight	30°	OSG	30L749
3/4 in	1 in	3 in	1/2 in	Weldon Flat	35°	OSG	30L476
3/4 in	1 1/4 in	3 1/2 in	1/2 in	Straight	35°	OSG	30L484
3/4 in	1 1/4 in	3 in	1/2 in	Straight	38°	Cleveland	33GE08
3/4 in	1 1/2 in	3 in	1/2 in	Weldon Flat	38°	Widia Hanita	48JA86
3/4 in	1 1/2 in	4 in	1/2 in	Weldon Flat	35°	OSG	30L478
3/4 in	1 1/2 in	4 in	1/2 in	Straight	35°	OSG	30L485
3/4 in	1 1/2 in	4 in	1/2 in	Weldon Flat	38°	Widia Hanita	48JC92
3/4 in	2 1/2 in	4 in	1/2 in	Straight	35°	OSG	30L487
3/4 in	2 1/2 in	4 in	1/2 in	Weldon Flat	35°	OSG	30L480
3/4 in	2 in	4 in	1/2 in	Weldon Flat	38°	Widia Hanita	48JC29
3/4 in	2 1/2 in	4 1/2 in	1/2 in	Weldon Flat	38°	Widia Hanita	48JC95