Additional End Mill sizes, materials, and coatings are available on Grainger.com.





General Purpose Finishing Carbide Ball End Mills

Bright (Uncoated) 4 Flutes 33GL90

ng Dia. N	Length of Cut	Overall Length	Shank Dia.	. Shank Type H	lelix Angle	Brand	Item No.	Milling Dia. % in	Length of Cut 3 in	Overall Length 6 in	5⁄8 in	Shank Type I Weldon Flat	Helix Angle	Brand —	1t 1 36
u tes 2 in	²⁵ ⁄ ₆₄ in	4 in	1/2 in	Straight	30 °	Micro 100	14K696	3/4 in 3/4 in	3 in 1½ in 1½ in	4 in 4 in	3/4 in 3/4 in	Weldon Flat Weldon Flat Weldon Flat	30°	Cleveland	36 33 36
mm	5.4-mm	100-mm	8 mm	Straight Straight Straight Straight	30°	Micro 100	14K793	3/4 in	2 in 3 in	6 in	3/4 in	Weldon Flat	30 °	Clayeland	361 361 331
mm mm	6.7-mm 8-mm	100-mm 100-mm	10 mm 12 mm	Straight Straight	30 °	Micro 100 Micro 100	14K810 14M228	3/4 in 7/8 in	1½ in	6 in 4 in	3/4 in 7/8 in	Weldon Flat Weldon Flat	30°	Cleveland Cleveland	330
ht (Unco	oated)	100 11111		Otraigni		1111010100		1 in	1½ in	4 in	1 in	Weldon Flat	30 °	_	361
ites in	½ in	1.5 in	1/8 in	Weldon Flat	30 °		36NU14	1 in 1 in	1½ in 2¼ in	4 in 5 in	1 in 1 in	Weldon Flat Weldon Flat	30°	Cleveland Cleveland	33(33(
in	½ in	1.5 in	1/8 in	Straight	30°	OSG	2TXN2 33FX60	1 in	3 in	6 in	1 in	Weldon Flat	30 °	Cleveland OSG OSG	330
in in	½ in 1 in	1.5 in 3 in	1/8 in 1/8 in	Straight Weldon Flat Weldon Flat	35 °	Cleveland Cleveland	33FX60 33FX62	5 mm 6 mm	16-mm 19-mm	51-mm 64-mm	5 mm 6 mm	Straight Straight	30°	OSG	30I 30I
2 in	½ in	2 in	3∕16 in	Weldon Flat	30°		36PC17	8 mm	21-mm 25-mm	64-mm 76-mm	8 mm 12 mm	Straight Straight	30 °	OSG OSG	30I 30I
6 in 6 in	5⁄8 in 1 1∕8 in	2 in 3 in	3/16 in 3/16 in	Weldon Flat Weldon Flat	30 ° 35 °	Cleveland	36NW04 33FX69	8 mm 12 mm TIAIN	25-111111	70-111111	12 111111	Juaigni	30	UJU	301
in	3/16 in	3 in	1/4 in	Straight Weldon Flat Weldon Flat	30°	Micro 100	14K673	2 Flutes 1/8 in	1/4 in	1.5 in	1/8 in	Weldon Flat	35 °	Cleveland	330
in in	3/4 in 3/4 in	2.5 in 2.5 in	1/4 in 1/4 in 1/4 in 1/4 in 1/4 in 1/4 in	Weldon Flat	30 ° 35 °	Cleveland	36NR56 33FX74 4XYY8	1/8 in	1/2 in	1.5 in 1.5 in	1/8 in	Straight	30°	OSG	30
in in in	1¼ in	2.5 in	1/4 in	vveidon Flat	40 ° 30 °	Onsrud	4XYY8	1/4 in 1/4 in	½ in ¾ in	2 in 2.5 in	½ in ¼ in	Weldon Flat	35 ° 30 °	Cleveland OSG	33 2T
in	1½ in 1½ in	4 in 4 in	1/4 in	Weldon Flat Weldon Flat Weldon Flat	35 °	Cleveland	36NR72 33FX76	1/4 in	1½ in	6 in	1/4 in	Straight Weldon Flat	35°	Cleveland	330
s in	½ in % in	2 in 2.5 in	5/16 in 3/8 in	Weldon Flat	35 °	Cleveland	33FX80	¹⁷ / ₆₄ in ³ / ₈ in	7⁄8 in 5∕8 in	2.5 in 2 in 2.5 in	5/16 in 3/8 in	Weldon Flat Weldon Flat	35 °	Cleveland Cleveland	33(33(
in	1 in	2.5 in	3/8 in	Weldon Flat Straight	30°	OSG	36NY98 2TXP1	3∕8 in	1 in	2.5 in	3⁄8 in	Straight	30°	OSG	2T
in	1½ in	3 in 4 in	3/8 in 3/8 in	Weldon Flat Weldon Flat	30 °		36NZ07	3⁄8 in 1∕2 in	1½ in 1 in	6 in 3 in	3/8 in 1/2 in	Weldon Flat Straight	35 °	Cleveland OSG	330 2T
in in	2 in 1 in	3 in	½ in	Weldon Flat	30°		36NZ23 36NN82	4 mm	8-mm	51-mm	4 mm	Straight	30°	OSG	54
in in	1 in 1 in	3 in 3 in	½ in ½ in	Straight Weldon Flat	30 ° 35 °	OSG Cleveland	2TXP5 33FX94	6 mm 4 Flutes	19-mm	64-mm	6 mm	Straight	30 °	OSG	30
in	1½ in	4 in	½ in	Weldon Flat Weldon Flat	30°		36NN90	1/8 in	1/4 in	1.5 in	½ in	Straight Straight	30 °	OSG OSG	54 21
in 6 in	1½ in 1¼ in	6 in 3.5 in	½ in %16 in	Weldon Flat Weldon Flat	30 °		36NP15 36PE19	1/8 in 1/8 in	½ in ½ in	1.5 in 1.5 in	½ in ½ in	Straight	30°	Widia Hanita	48
in	3∕4 in	3 in	5⁄8 in	Weldon Flat Weldon Flat	35 °	Cleveland	36PE19 33FX99	1/8 in	3∕4 in	2.2 in	1/8 in	Straight	30°	OSG	54
in	11/4 in 11/4 in	3.5 in 3.5 in	5% in 5% in	Weldon Flat Straight	30 °	OSG	36PC53 30L938	5⁄32 in 5∕32 in	5/16 in 9/16 in	2 in 2 in 2 in 2 in 2 in 2 in	3∕16 in 3∕16 in	Straight Straight	30 °	Widia Hanita OSG	48 21
in	15⁄8 in	4 in	5⁄8 in	Straight Weldon Flat	40 °	Onsrud	4XYX6	5/32 in 3/16 in	9/16 in 5/16 in	2 in	3/16 in 3/16 in	Straight Weldon Flat	30° 30°	Widia Hanita	48
in in	1 in 1½ in	3 in 4 in	3/4 in 3/4 in	Weldon Flat Weldon Flat	35 ° 30 °	Cleveland —	33FY04 36NX49	3∕16 in	3% in	2 in	3∕16 in	Straight	30°	Cleveland OSG OSG	33 54
in	2 in	6 in	3∕4 in	Weldon Flat	30°	— Clayaland	36NX57	3/16 in 3/16 in	5% in 5% in	2 in 2 in 2 in 2 in	3/16 in 3/16 in	Straight Straight	30 °	OSG Widia Hanita	2T 48I
in in	2¼ in 1½ in	5 in 4 in	3⁄4 in 7∕8 in	Weldon Flat Weldon Flat	35 ° 35 °	Cleveland Cleveland	33FY06 33FY08	3/16 in	5⁄8 in	2 in	3∕16 in	Weldon Flat	30°	Cleveland	33
in	1½ in	4 in	1 in	Weldon Flat	35 ° 35 °	Cleveland	33FY11	3/16 in 3/16 in	3/4 in 1 in	2.5 in 4 in	3/16 in 3/16 in	Straight Straight	30 °	Widia Hanita	48 48
in nm	4 in 21-mm	7 in 64-mm	1 in 8 mm	Weldon Flat Straight	30°	OSG	36NM13 30L878	7∕32 in	5⁄8 in	2.5 in 2.5 in	1/4 in	Straight	30°	Widia Hanita Widia Hanita	481
ites	½ in	1.5 in	1/8 in	_	30 °	OSG		15/64 in 1/4 in	3/4 in	2.5 in	½ in ¼ in	Straight Straight	30 °	OSG	30I 48I
in in	½ in	1.5 in	1/8 in	Straight Weldon Flat	30 °	Cleveland	2TXR9 33GC02 33GC04 33GC05	1/4 in	½ in ¾ in	2 in 2.5 in	1/4 in	Straight	30°	Widia Hanita OSG	21
in in	³ ⁄4 in 1 in	2.2 in 3 in	1/8 in 1/8 in	Weldon Flat Weldon Flat	30 °	Cleveland Cleveland	33GC04	1/4 in 1/4 in	3⁄4 in 1 in	2.5 in 4 in	½ in ¼ in	Straight Weldon Flat	30 °	Widia Hanita	48
2 in	1/2 in	2 in	3∕16 in	Weldon Flat	30 °	_	362621	1/4 in	1 ⅓ in	3 in	1/4 in	Straight	30°	Cleveland Widia Hanita	33 48
2 in 34 in	9/16 in 9/16 in	2 in 2 in	3/16 in 3/16 in	Straight Straight	30 °	OSG OSG	2TXT2 30M024	1/4 in 9/32 in	1½ in ¾ in	4 in 2.5 in	1/4 in 5/16 in	Straight Straight	30 °	OSG OSG	54 301
6 IN	5/16 in	2 in	3/16 in	Weldon Flat	30 °	Cleveland	33GC10	5/16 in	½ in	2.5 in 2 in	5/16 in 5/16 in	Straight	30°	Widia Hanita	48
6 in 6 in	5/8 in 5/8 in	2 in 2 in	3/16 in 3/16 in	Straight Weldon Flat	30 °	OSG Cleveland	2TXT4 33GC11 36NW08	5/16 in 5/16 in	13/16 in 13/16 in	2.5 in 2.5 in 2.5 in	5∕16 in 5∕16 in	Straight Straight	30 °	Widia Hanita OSG	48I 2T
6 in	5⁄8 in	2 in	3∕16 in	Weldon Flat	30 °	_	36NW08	5/16 in	⅓ in	2.5 in	5∕16 in	Straight Weldon Flat	30°	Cleveland	33
in in	3/4 in 11/8 in	2.5 in 3 in	3/16 in 3/16 in	Weldon Flat Weldon Flat	30°	Cleveland Cleveland	33GC12 33GC13 36NW24 33GC17 2TXT6	5/16 in 3/8 in	1 1/8 in 1/8 in	3 in 2.5 in	5/16 in 3/8 in	Straight Weldon Flat	30° 30°	Widia Hanita	48 36
in :	11/8 in	4 in	3∕16 in	Weldon Flat Weldon Flat Straight	30°	_	36NW24	3⁄8 in	1 in	2.5 in 2.5 in 2.5 in 2.5 in 2.5 in 3 in	3% in 3% in 3% in 3% in 3% in 3% in	Straight Straight Weldon Flat	30 °	Widia Hanita OSG	36 48
in in	½ in ¾ in	2 in 2.5 in	1/4 in 1/4 in	Straight	30 °	Cleveland OSG	2TXT6	3% in 3% in 3% in	1 in 1 in	2.5 in	3/8 in	Weldon Flat	30 °	Cleveland	21 33 48
in	3∕4 in	2.5 in	1/4 in	weldon Flat	30°	_	36NK6U	3/8 in 3/8 in	1 1/8 in 1 1/2 in	3 in 6 in	3/8 in 3/8 in	Straight Straight	30°	Cleveland Widia Hanita Widia Hanita	48
in in	3/4 in 1 in	2.5 in 4 in	1/4 in 1/4 in	Weldon Flat Weldon Flat	30 °	Cleveland Cleveland	33GC18 33GC19	3/8 in	3 in	6 in	3/8 in	weidon Flat	30°	_	48 36
in	1½ in	4 in	1/4 in	Weldon Flat	30°	Cleveland	33GC21	7∕16 in ³¹ ∕64 in	1 in 1 in	2.5 in 3 in	½ in ½ in	Straight Straight	30 °	Widia Hanita OSG	48 30
in in	1½ in 1½ in	4 in 6 in	1/4 in 1/4 in	Weldon Flat Weldon Flat	30 °	Cleveland	36NR76 33GC22	½ in	5⁄8 in	2.5 in 3 in	½ in ½ in	Weldon Flat	30°	Cleveland	33
4 in	7/8 in 1/2 in 13/16 in	2.5 in	5∕16 in	Weldon Flat	30 °	_	36NV03	½ in ½ in	1 in 1 in	3 in 3 in	½ in ½ in	Straight Weldon Flat	30°	OSG Cleveland	2T 33
in in	13/16 in	2 in 2.5 in	5/16 in 5/16 in	Weldon Flat Straight	30°	Cleveland OSG	33GC25 2TXT8 33GC26	½ in	1 in	3 in	½ in ½ in	Straight	30°	Widia Hanita	48
in in	7/8 in 11/8 in	2.5 in	5/16 in 5/16 in	Straight Weldon Flat	30 °	Cleveland	33GC26 33GC27	½ in ½ in	1 in 1½ in	4 in 6 in	½ in ½ in	Straight Straight	30 °	Widia Hanita Widia Hanita	48 48
in	7∕8 in	3 in 2.5 in	3/8 in	Weldon Flat Weldon Flat	30°	Cleveland —	36NZ03	½ in	2 in	4.5 in	½ in	Straight	30 °	Widia Hanita	48
in in	1 in 1 in	2.5 in 2.5 in	3% in 3% in	Straight Weldon Flat	30 °	OSG Cleveland	2TXU1 33GC31	½ in ½ in	2 in 2 in	4 in 4 in	½ in ½ in	Weldon Flat Straight	30°	Cleveland Widia Hanita Widia Hanita Widia Hanita	33 48
in	2 in	4 in	3% in	Weldon Flat	30°	_	36NZ27	9/16 in	11/4 in	3.5 in 3.5 in	%16 in	Straight	30°	Widia Hanita	48
in in	1 in 1 in	2.7 in 2.5 in	7∕16 in 7∕16 in	Straight Weldon Flat	30 °	OSG	30M117	5/8 in 5/8 in	1 1/4 in 1 1/4 in	3.5 in 3.5 in	5/8 in 5/8 in	Straight Straight	30°	Widia Hanita OSG	- 21
in :	2 in	4 in	7∕16 in	Weldon Flat	30 °	Cleveland	36PD66 33GC39	5⁄8 in	21/4 in	5 in 3 in	5⁄8 in	Straight	30°	Widia Hanita	48
in in	5⁄8 in 1 in	2.5 in	½ in ½ in	Weldon Flat Straight	30 °	Cleveland OSG	33GC42	3/4 in 3/4 in	1 in 1½ in	3 in 4 in	3/4 in 3/4 in	Straight Weldon Flat	30°	Widia Hanita	36
in	1 in	3 in 3 in	½ in	Weldon Flat	30°	_	2TXU3 36NN86	3/4 in	1½ in	4 in	3/4 in	Straight	30 °	OSG Claveland	21 330
in in	1 in 1 in	3 in 4 in	½ in ½ in	Weldon Flat Weldon Flat	30 °	Cleveland —	33GC43	3/4 in 3/4 in	3 in 3 in	6 in 6 in	3/4 in 3/4 in	Weldon Flat Straight	30°	Cleveland Widia Hanita	48
in	1½ in	4 in	½ in	Weldon Flat	30°		36NP11 36NN94	4 mm	14-mm	51-mm	4 mm	Straight	30°	OSG	301
in in	1½ in 3 in	6 in 6 in	½ in ½ in	Weldon Flat Weldon Flat	30 °	— Cleveland	36NP19 33GC46	TiCN 2 Flutes							
34 in	1⅓ in	3.5 in	9⁄16 in	Weldon Flat	30°	_	36NX37	1/4 in	11/8 in	3 in	1/4 in	Straight	30°	OSG	54
6 in 3 in	1 1/8 in 3/4 in	3.5 in 3 in 3.5 in	9∕16 in 5⁄8 in	Straight Weldon Flat	30 ° 30 °	OSG Cleveland	30M143 33GC48	4 Flutes ½ in	1 in	3 in	½ in	Weldon Flat	30 °	_	361
			5/8 in	Weldon Flat	00.0	2.2.5.0	36PC57	½ in	1 in	6 in	½ in	Weldon Flat	30 °		36