

shaping your dreams



OSG GROUP COMPANY

SOLID CARBIDE STANDARD END MILL RANGE

Solid Carbide Standard

End Mills

for Optimised CNC Machining

Somta's Solid Carbide Standard End Mill Range is a comprehensive family of solid carbide 2 and 4 flute end mills and ball nose end mills, in both regular and long series.

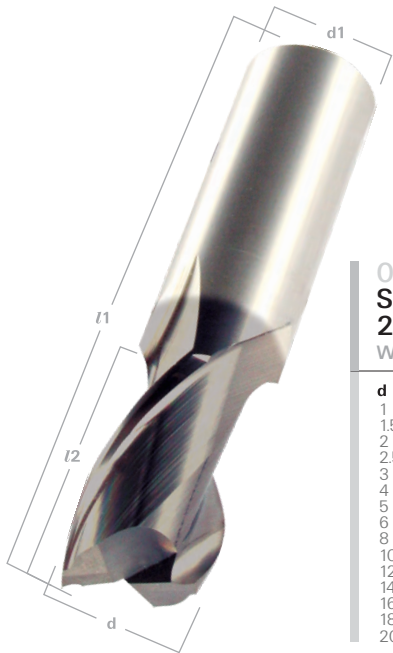
These Somta carbide end mills are manufactured from high grade micrograin tungsten carbide, with a physical vapour deposition (PVD) coated and uncoated version. The combination of solid tungsten carbide substrate with thin film PVD surface coatings, gives significant benefits with vastly improved cycle times on a broad range of work materials.

This range of end mills is most suited to CNC applications, particularly when machining hard and abrasive materials, or when used on softer materials like fibreglass, brass and plastics.

Somta solid carbide standard end mill range guarantees higher feed rates, superior surface finish and longer tool life, with the added value of local regrinding and recoating services.

Somta provides complete technical design and manufacturing services for all custom designed carbide tooling requirements.



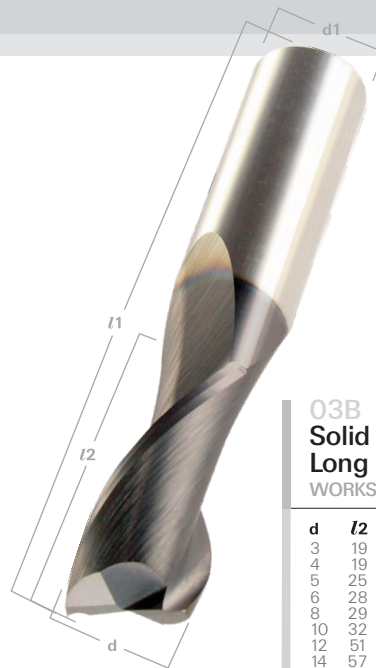


03A
Solid Carbide
2 Flute End Mills

WORKS STANDARD, COATED

d	l2	l1	d1	CODE
1	3	39	3	03A0100X
1.5	5	39	3	03A0150X
2	7	39	3	03A0200X
2.5	7	39	3	03A0250X
3	8	39	3	03A0300X
4	8	57	6	03A0400X
5	10	57	6	03A0500X
6	10	57	6	03A0600X
8	16	63	8	03A0800X
10	19	72	10	03A1000X
12	22	83	12	03A1200X
14	22	83	14	03A1400X
16	26	92	16	03A1600X
18	26	96	18	03A1800X
20	32	104	20	03A2000X

For uncoated, denote code excluding "X"

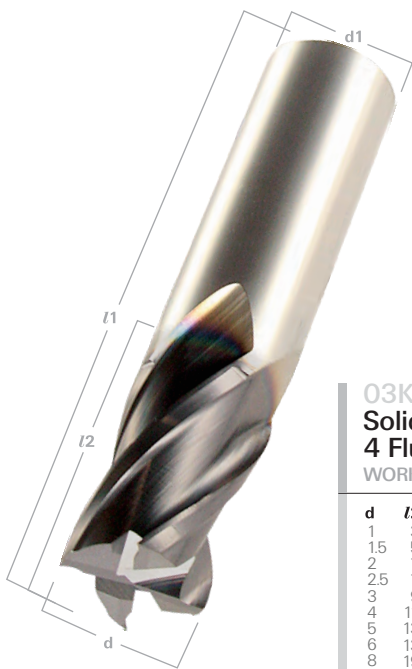


03B
Solid Carbide 2 Flute
Long Series End Mills

WORKS STANDARD, COATED

d	l2	l1	d1	CODE
3	19	57	3	03B0300X
4	19	57	4	03B0400X
5	25	64	5	03B0500X
6	28	76	6	03B0600X
8	29	76	8	03B0800X
10	32	102	10	03B1000X
12	51	102	12	03B1200X
14	57	127	14	03B1400X
16	57	127	16	03B1600X
18	57	127	18	03B1800X
20	57	127	20	03B2000X

For uncoated, denote code excluding "X"



03K
Solid Carbide
4 Flute End Mills

WORKS STANDARD, COATED

d	l2	l1	d1	CODE
1	3	39	3	03K0100X
1.5	5	39	3	03K0150X
2	7	39	3	03K0200X
2.5	7	39	3	03K0250X
3	9	39	3	03K0300X
4	11	57	6	03K0400X
5	13	57	6	03K0500X
6	13	57	6	03K0600X
8	19	63	8	03K0800X
10	22	72	10	03K1000X
12	26	83	12	03K1200X
14	26	83	14	03K1400X
16	32	92	16	03K1600X
18	32	96	18	03K1800X
20	38	104	20	03K2000X

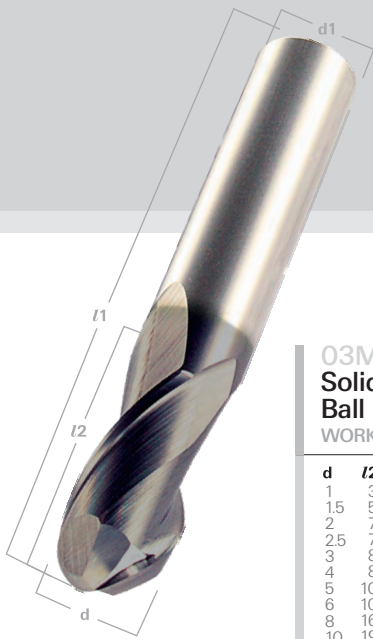


03L
Solid Carbide 4 Flute
Long Series End Mills

WORKS STANDARD, COATED

d	l2	l1	d1	CODE
3	19	57	3	03L0300X
4	19	57	4	03L0400X
5	25	64	5	03L0500X
6	28	76	6	03L0600X
8	29	76	8	03L0800X
10	32	102	10	03L1000X
12	51	102	12	03L1200X
14	57	127	14	03L1400X
16	57	127	16	03L1600X
18	57	127	18	03L1800X
20	57	127	20	03L2000X





03M
Solid Carbide 2 Flute
Ball Nose End Mills
 WORKS STANDARD, COATED

d	l2	l1	d1	CODE
1	3	39	3	03M0100X
1.5	5	39	3	03M0150X
2	7	39	3	03M0200X
2.5	7	39	3	03M0250X
3	8	39	3	03M0300X
4	8	57	6	03M0400X
5	10	57	6	03M0500X
6	10	57	6	03M0600X
8	16	63	8	03M0800X
10	19	72	10	03M1000X
12	22	83	12	03M1200X
14	22	83	14	03M1400X
16	26	92	16	03M1600X
18	26	96	18	03M1800X
20	32	104	20	03M2000X

For uncoated, denote code excluding "X"



03N
Solid Carbide 2 Flute
Ball Nose Long Series
End Mills
 WORKS STANDARD, COATED

d	l2	l1	d1	CODE
3	19	57	3	03N0300X
4	19	57	4	03N0400X
5	25	64	5	03N0500X
6	28	76	6	03N0600X
8	29	76	8	03N0800X
10	32	102	10	03N1000X
12	51	102	12	03N1200X
14	57	127	14	03N1400X
16	57	127	16	03N1600X
18	57	127	18	03N1800X
20	57	127	20	03N2000X

For uncoated, denote code excluding "X"

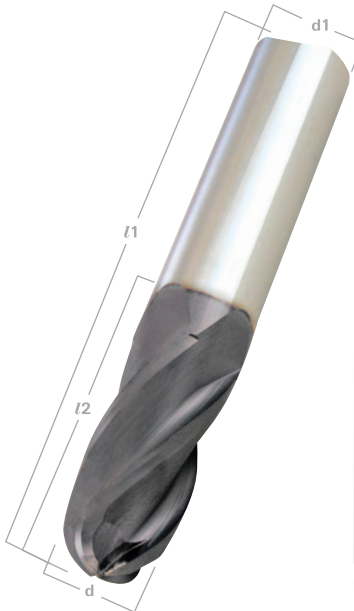
03A0000X
 4mm, 5mm, 6mm,
 8mm, 10mm and 12mm
 Solid Carbide
 2 Flute End Mill Set
 WORKS STANDARD, COATED



03K0000X
 4mm, 5mm, 6mm,
 8mm, 10mm and 12mm
 Solid Carbide
 4 Flute End Mill Set
 WORKS STANDARD, COATED



03L0000X
 4mm, 5mm, 6mm, 8mm,
 10mm and 12mm Solid
 Carbide 4 Flute Long
 Series End Mill Set
 WORKS STANDARD, COATED



03P
Solid Carbide 4 Flute
Ball Nose End Mills
 WORKS STANDARD, COATED

d	l2	l1	d1	CODE
1	3	39	3	03P0100X
1.5	5	39	3	03P0150X
2	7	39	3	03P0200X
2.5	7	39	3	03P0250X
3	9	39	3	03P0300X
4	11	57	6	03P0400X
5	13	57	6	03P0500X
6	13	57	6	03P0600X
8	19	63	8	03P0800X
10	22	72	10	03P1000X
12	26	83	12	03P1200X
14	26	83	14	03P1400X
16	32	92	16	03P1600X
18	32	96	18	03P1800X
20	38	104	20	03P2000X

For uncoated, denote code excluding "X"

03M0000X
 4mm, 5mm, 6mm, 8mm,
 10mm and 12mm Solid
 Carbide 2 Flute Ball
 Nose End Mill Set
 WORKS STANDARD, COATED



Cutting Data

● Recommended ○ Suitable

Parameters based on ideal conditions.
Adjust parameters accordingly to real applications.

COATED 03A, 03B, 03M, 03N, 03P END MILL FEEDS AND SPEEDS



$ap = 1.0 \times d$
 $ae = 0.5 \times d$
Side Milling = fz



$ap = 1.0 \times d$
 $ae = 1.0 \times d$
Slot Milling = fz x 0.7

Material Type	Hardness HB	Recommended Surface Speed in m/min	Recommended feed in mm per tooth (fz) Use 50% of recommended feed rate for long series end mills End Mill Diameter in mm								
			2	4	6	8	10	12	16	20	
			Steel	<ul style="list-style-type: none"> Free Cutting Steel Structural Steel Plain Carbon Steel Alloy Steel Low Alloy Steel 	<ul style="list-style-type: none"> < 120 < 200 < 250 < 250 250-350 	<ul style="list-style-type: none"> 175 125 100 65 40 	<ul style="list-style-type: none"> 0.019-0.031 0.019-0.031 0.019-0.031 0.019-0.031 0.019-0.031 	<ul style="list-style-type: none"> 0.019-0.031 0.019-0.031 0.019-0.031 0.019-0.031 0.019-0.031 	<ul style="list-style-type: none"> 0.024-0.039 0.024-0.039 0.024-0.039 0.020-0.033 0.020-0.033 	<ul style="list-style-type: none"> 0.035-0.059 0.035-0.059 0.035-0.059 0.022-0.037 0.022-0.037 	<ul style="list-style-type: none"> 0.040-0.067 0.040-0.067 0.040-0.067 0.030-0.050 0.030-0.050
Stainless Steel	<ul style="list-style-type: none"> Free machining Stainless Steel Austenitic Stainless Steel Ferritic and Martensitic Stainless Steel 	<ul style="list-style-type: none"> < 250 < 320 < 300 	<ul style="list-style-type: none"> 65 55 48 	<ul style="list-style-type: none"> 0.006-0.010 0.006-0.010 0.006-0.010 	<ul style="list-style-type: none"> 0.008-0.013 0.008-0.013 0.006-0.009 	<ul style="list-style-type: none"> 0.011-0.019 0.011-0.019 0.008-0.013 	<ul style="list-style-type: none"> 0.015-0.025 0.015-0.025 0.011-0.019 	<ul style="list-style-type: none"> 0.023-0.038 0.023-0.038 0.015-0.025 	<ul style="list-style-type: none"> 0.030-0.050 0.030-0.050 0.023-0.038 	<ul style="list-style-type: none"> 0.038-0.063 0.038-0.063 0.030-0.050 	<ul style="list-style-type: none"> 0.045-0.075 0.045-0.075 0.034-0.056
Cast Iron	<ul style="list-style-type: none"> Lamellar Graphite Cast Iron Lamellar Graphite Cast Iron Nodular Graphite, Malleable Cast Iron Nodular Graphite, Malleable Cast Iron 	<ul style="list-style-type: none"> < 150 150-300 < 200 200-300 	<ul style="list-style-type: none"> 120 90 120 90 	<ul style="list-style-type: none"> 0.019-0.031 0.019-0.031 0.019-0.031 0.019-0.031 	<ul style="list-style-type: none"> 0.019-0.031 0.019-0.031 0.019-0.031 0.019-0.031 	<ul style="list-style-type: none"> 0.024-0.039 0.020-0.033 0.024-0.039 0.020-0.033 	<ul style="list-style-type: none"> 0.035-0.059 0.026-0.044 0.035-0.059 0.026-0.044 	<ul style="list-style-type: none"> 0.040-0.067 0.030-0.050 0.040-0.067 0.030-0.050 	<ul style="list-style-type: none"> 0.050-0.083 0.030-0.050 0.050-0.083 0.030-0.050 	<ul style="list-style-type: none"> 0.058-0.096 0.040-0.067 0.058-0.096 0.040-0.067 	<ul style="list-style-type: none"> 0.063-0.104 0.050-0.083 0.063-0.104 0.050-0.083
Titanium	<ul style="list-style-type: none"> Titanium unalloyed Titanium alloyed Titanium alloyed 	<ul style="list-style-type: none"> < 200 < 270 270-350 	<ul style="list-style-type: none"> 56 50 44 	<ul style="list-style-type: none"> 0.005-0.008 0.004-0.006 0.004-0.006 	<ul style="list-style-type: none"> 0.009-0.015 0.008-0.013 0.008-0.013 	<ul style="list-style-type: none"> 0.018-0.030 0.015-0.025 0.015-0.025 	<ul style="list-style-type: none"> 0.025-0.041 0.020-0.034 0.020-0.034 	<ul style="list-style-type: none"> 0.029-0.049 0.025-0.041 0.025-0.041 	<ul style="list-style-type: none"> 0.034-0.056 0.028-0.047 0.028-0.047 	<ul style="list-style-type: none"> 0.041-0.069 0.035-0.058 0.035-0.058 	<ul style="list-style-type: none"> 0.046-0.077 0.039-0.065 0.039-0.065
Nickel	<ul style="list-style-type: none"> Nickel unalloyed Nickel alloyed Nickel alloyed 	<ul style="list-style-type: none"> < 150 < 270 270-350 	<ul style="list-style-type: none"> 40 33 18 	<ul style="list-style-type: none"> 0.017-0.029 0.012-0.019 0.012-0.019 	<ul style="list-style-type: none"> 0.017-0.029 0.012-0.019 0.012-0.019 	<ul style="list-style-type: none"> 0.026-0.043 0.017-0.029 0.017-0.029 	<ul style="list-style-type: none"> 0.026-0.043 0.017-0.029 0.035-0.058 	<ul style="list-style-type: none"> 0.035-0.058 0.023-0.038 0.023-0.038 	<ul style="list-style-type: none"> 0.043-0.071 0.027-0.045 0.027-0.045 	<ul style="list-style-type: none"> 0.046-0.077 0.029-0.048 0.029-0.048 	<ul style="list-style-type: none"> 0.052-0.087 0.035-0.058 0.035-0.058
Copper	<ul style="list-style-type: none"> Copper Beta Brass, Bronze Alpha Brass High strength Bronze 	<ul style="list-style-type: none"> < 100 < 200 < 200 < 470 	<ul style="list-style-type: none"> 100 100 100 75 	<ul style="list-style-type: none"> 0.038-0.063 0.038-0.063 0.038-0.063 0.019-0.031 	<ul style="list-style-type: none"> 0.038-0.063 0.038-0.063 0.038-0.063 0.019-0.031 	<ul style="list-style-type: none"> 0.053-0.088 0.053-0.088 0.053-0.088 0.026-0.044 	<ul style="list-style-type: none"> 0.053-0.088 0.053-0.088 0.053-0.088 0.026-0.044 	<ul style="list-style-type: none"> 0.060-0.100 0.060-0.100 0.060-0.100 0.030-0.050 	<ul style="list-style-type: none"> 0.060-0.100 0.060-0.100 0.060-0.100 0.030-0.050 	<ul style="list-style-type: none"> 0.068-0.113 0.068-0.113 0.068-0.113 0.034-0.056 	<ul style="list-style-type: none"> 0.075-0.125 0.075-0.125 0.075-0.125 0.038-0.063
Aluminium	<ul style="list-style-type: none"> Aluminium Magnesium unalloyed Aluminium Alloy < 5% Si Aluminium Alloy 5 to 10% Si Aluminium Alloy > 10% Si 	<ul style="list-style-type: none"> < 100 < 150 < 120 - 	<ul style="list-style-type: none"> 105 88 63 63 	<ul style="list-style-type: none"> 0.038-0.063 0.038-0.063 0.038-0.063 0.038-0.063 	<ul style="list-style-type: none"> 0.038-0.063 0.038-0.063 0.038-0.063 0.038-0.063 	<ul style="list-style-type: none"> 0.075-0.125 0.075-0.125 0.075-0.125 0.075-0.125 	<ul style="list-style-type: none"> 0.150-0.250 0.150-0.250 0.150-0.250 0.150-0.250 	<ul style="list-style-type: none"> 0.150-0.250 0.150-0.250 0.150-0.250 0.150-0.250 	<ul style="list-style-type: none"> 0.150-0.250 0.150-0.250 0.150-0.250 0.150-0.250 	<ul style="list-style-type: none"> 0.225-0.375 0.225-0.375 0.225-0.375 0.225-0.375 	<ul style="list-style-type: none"> 0.375-0.625 0.375-0.625 0.375-0.625 0.375-0.625
Synthetic	<ul style="list-style-type: none"> Duroplastics (short chipping) Thermoplastics (long chipping) Fibre reinforced synthetic materials 	<ul style="list-style-type: none"> - - - 	<ul style="list-style-type: none"> 175 175 75 	<ul style="list-style-type: none"> 0.006-0.010 0.006-0.010 0.006-0.010 	<ul style="list-style-type: none"> 0.011-0.019 0.011-0.019 0.011-0.019 	<ul style="list-style-type: none"> 0.017-0.028 0.017-0.028 0.017-0.028 	<ul style="list-style-type: none"> 0.023-0.038 0.023-0.038 0.023-0.038 	<ul style="list-style-type: none"> 0.027-0.045 0.027-0.045 0.027-0.045 	<ul style="list-style-type: none"> 0.033-0.055 0.033-0.055 0.033-0.055 	<ul style="list-style-type: none"> 0.044-0.073 0.044-0.073 0.044-0.073 	<ul style="list-style-type: none"> 0.055-0.091 0.055-0.091 0.055-0.091



$ap = 1.0 \times d$
 $ae = 0.5 \times d$
Side Milling = fz



$ap = 1.0 \times d$
 $ae = 1.0 \times d$
Slot Milling = fz x 0.7

UNCOATED 03A, 03B, 03M, 03N, 03P END MILL FEEDS AND SPEEDS

Material Type	Hardness HB	Recommended Surface Speed in m/min	Recommended feed in mm per tooth (fz) Use 50% of recommended feed rate for long series end mills End Mill Diameter in mm								
			2	4	6	8	10	12	16	20	
			Steel	<ul style="list-style-type: none"> Free Cutting Steel Structural Steel Plain Carbon Steel Alloy Steel Low Alloy Steel 	<ul style="list-style-type: none"> < 120 < 200 < 250 < 250 250-350 	<ul style="list-style-type: none"> 101 72 58 37 23 	<ul style="list-style-type: none"> 0.019-0.031 0.019-0.031 0.019-0.031 0.019-0.031 0.019-0.031 	<ul style="list-style-type: none"> 0.019-0.031 0.019-0.031 0.019-0.031 0.019-0.031 0.019-0.031 	<ul style="list-style-type: none"> 0.024-0.039 0.024-0.039 0.024-0.039 0.020-0.033 0.020-0.033 	<ul style="list-style-type: none"> 0.035-0.059 0.035-0.059 0.035-0.059 0.026-0.044 0.026-0.044 	<ul style="list-style-type: none"> 0.040-0.067 0.040-0.067 0.040-0.067 0.030-0.050 0.030-0.050
Stainless Steel	<ul style="list-style-type: none"> Free machining Stainless Steel Austenitic Stainless Steel Ferritic and Martensitic Stainless Steel 	<ul style="list-style-type: none"> < 250 < 320 < 300 	<ul style="list-style-type: none"> 37 32 27 	<ul style="list-style-type: none"> 0.006-0.010 0.006-0.010 0.006-0.010 	<ul style="list-style-type: none"> 0.008-0.013 0.008-0.013 0.006-0.009 	<ul style="list-style-type: none"> 0.011-0.019 0.011-0.019 0.008-0.013 	<ul style="list-style-type: none"> 0.015-0.025 0.015-0.025 0.011-0.019 	<ul style="list-style-type: none"> 0.023-0.038 0.023-0.038 0.015-0.025 	<ul style="list-style-type: none"> 0.030-0.050 0.030-0.050 0.023-0.038 	<ul style="list-style-type: none"> 0.038-0.063 0.038-0.063 0.030-0.050 	<ul style="list-style-type: none"> 0.045-0.075 0.045-0.075 0.034-0.056
Cast Iron	<ul style="list-style-type: none"> Lamellar Graphite Cast Iron Lamellar Graphite Cast Iron Nodular Graphite, Malleable Cast Iron Nodular Graphite, Malleable Cast Iron 	<ul style="list-style-type: none"> < 150 150-300 < 200 200-300 	<ul style="list-style-type: none"> 69 52 69 52 	<ul style="list-style-type: none"> 0.019-0.031 0.019-0.031 0.019-0.031 0.019-0.031 	<ul style="list-style-type: none"> 0.019-0.031 0.019-0.031 0.019-0.031 0.019-0.031 	<ul style="list-style-type: none"> 0.024-0.039 0.020-0.033 0.024-0.039 0.020-0.033 	<ul style="list-style-type: none"> 0.035-0.059 0.026-0.044 0.035-0.059 0.026-0.044 	<ul style="list-style-type: none"> 0.040-0.067 0.030-0.050 0.040-0.067 0.030-0.050 	<ul style="list-style-type: none"> 0.050-0.083 0.030-0.050 0.050-0.083 0.030-0.050 	<ul style="list-style-type: none"> 0.058-0.096 0.040-0.067 0.058-0.096 0.040-0.067 	<ul style="list-style-type: none"> 0.063-0.104 0.050-0.083 0.063-0.104 0.050-0.083
Titanium	<ul style="list-style-type: none"> Titanium unalloyed Titanium alloyed Titanium alloyed 	<ul style="list-style-type: none"> < 200 < 270 270-350 	<ul style="list-style-type: none"> 32 29 25 	<ul style="list-style-type: none"> 0.005-0.008 0.004-0.006 0.004-0.006 	<ul style="list-style-type: none"> 0.009-0.015 0.008-0.013 0.008-0.013 	<ul style="list-style-type: none"> 0.018-0.030 0.015-0.025 0.015-0.025 	<ul style="list-style-type: none"> 0.025-0.041 0.020-0.034 0.020-0.034 	<ul style="list-style-type: none"> 0.029-0.049 0.025-0.041 0.025-0.041 	<ul style="list-style-type: none"> 0.034-0.056 0.028-0.047 0.028-0.047 	<ul style="list-style-type: none"> 0.041-0.069 0.035-0.058 0.035-0.058 	<ul style="list-style-type: none"> 0.046-0.077 0.039-0.065 0.039-0.065
Nickel	<ul style="list-style-type: none"> Nickel unalloyed Nickel alloyed Nickel alloyed 	<ul style="list-style-type: none"> < 150 < 270 270-350 	<ul style="list-style-type: none"> 23 19 10 	<ul style="list-style-type: none"> 0.017-0.029 0.012-0.019 0.012-0.019 	<ul style="list-style-type: none"> 0.017-0.029 0.012-0.019 0.012-0.019 	<ul style="list-style-type: none"> 0.026-0.043 0.017-0.029 0.017-0.029 	<ul style="list-style-type: none"> 0.026-0.043 0.017-0.029 0.017-0.029 	<ul style="list-style-type: none"> 0.035-0.058 0.023-0.038 0.023-0.038 	<ul style="list-style-type: none"> 0.043-0.071 0.027-0.045 0.027-0.045 	<ul style="list-style-type: none"> 0.046-0.077 0.029-0.048 0.029-0.048 	<ul style="list-style-type: none"> 0.052-0.087 0.035-0.058 0.035-0.058
Copper	<ul style="list-style-type: none"> Copper Beta Brass, Bronze Alpha Brass High strength Bronze 	<ul style="list-style-type: none"> < 100 < 200 < 200 < 470 	<ul style="list-style-type: none"> 58 58 58 43 	<ul style="list-style-type: none"> 0.038-0.063 0.038-0.063 0.038-0.063 0.019-0.031 	<ul style="list-style-type: none"> 0.038-0.063 0.038-0.063 0.038-0.063 0.019-0.031 	<ul style="list-style-type: none"> 0.053-0.088 0.053-0.088 0.053-0.088 0.026-0.044 	<ul style="list-style-type: none"> 0.053-0.088 0.053-0.088 0.053-0.088 0.026-0.044 	<ul style="list-style-type: none"> 0.060-0.100 0.060-0.100 0.060-0.100 0.030-0.050 	<ul style="list-style-type: none"> 0.060-0.100 0.060-0.100 0.060-0.100 0.030-0.050 	<ul style="list-style-type: none"> 0.068-0.113 0.068-0.113 0.068-0.113 0.034-0.056 	<ul style="list-style-type: none"> 0.075-0.125 0.075-0.125 0.075-0.125 0.038-0.063
Aluminium	<ul style="list-style-type: none"> Aluminium Magnesium unalloyed Aluminium Alloy < 5% Si Aluminium Alloy 5 to 10% Si Aluminium Alloy > 10% Si 	<ul style="list-style-type: none"> < 100 < 150 < 120 - 	<ul style="list-style-type: none"> 105 88 63 63 	<ul style="list-style-type: none"> 0.038-0.063 0.038-0.063 0.038-0.063							

COATED O3K END MILL FEEDS AND SPEEDS



$ap = 1.0 \times d$
 $ae = 0.5 \times d$
 Side Milling = fz
 $\varnothing \leq 3\text{mm} = Vc \times 0.85$



$ap = 1.0 \times d$
 $ae = 1.0 \times d$
 Slot Milling = $fz \times 0.7$
 $\varnothing \leq 3\text{mm} = Vc \times 0.85$

Material Type	Hardness HB	Recommended Surface Speed in m/min	Recommended feed in mm per tooth (fz) Use 50% of recommended feed rate for long series end mills End Mill Diameter in mm								
			2	4	6	8	10	12	16	20	
Steel	● Free Cutting Steel	< 120	210	0.019-0.031	0.019-0.031	0.024-0.039	0.035-0.059	0.040-0.067	0.050-0.083	0.058-0.096	0.063-0.104
	● Structural Steel	< 200	150	0.019-0.031	0.019-0.031	0.024-0.039	0.035-0.059	0.040-0.067	0.050-0.083	0.058-0.096	0.063-0.104
	● Plain Carbon Steel	< 250	120	0.019-0.031	0.019-0.031	0.024-0.039	0.035-0.059	0.040-0.067	0.050-0.083	0.058-0.096	0.063-0.104
	● Alloy Steel	< 250	78	0.019-0.031	0.019-0.031	0.020-0.033	0.026-0.044	0.030-0.050	0.030-0.050	0.040-0.067	0.050-0.083
	● Low Alloy Steel	250-350	48	0.019-0.031	0.019-0.031	0.020-0.033	0.026-0.044	0.030-0.050	0.030-0.050	0.040-0.067	0.050-0.083
Stainless Steel	● Free machining Stainless Steel	< 250	78	0.006-0.010	0.008-0.013	0.011-0.019	0.015-0.025	0.023-0.038	0.030-0.050	0.038-0.063	0.045-0.075
	● Austenitic Stainless Steel	< 320	66	0.006-0.010	0.008-0.013	0.011-0.019	0.015-0.025	0.023-0.038	0.030-0.050	0.038-0.063	0.045-0.075
	○ Ferritic and Martensitic Stainless Steel	< 300	58	0.006-0.010	0.006-0.009	0.008-0.013	0.011-0.019	0.015-0.025	0.023-0.038	0.030-0.050	0.034-0.056
Cast Iron	● Lamellar Graphite Cast Iron	< 150	144	0.019-0.031	0.019-0.031	0.024-0.039	0.035-0.059	0.040-0.067	0.050-0.083	0.058-0.096	0.063-0.104
	● Lamellar Graphite Cast Iron	150-300	108	0.019-0.031	0.019-0.031	0.020-0.033	0.026-0.044	0.030-0.050	0.030-0.050	0.040-0.067	0.050-0.083
	● Nodular Graphite, Malleable Cast Iron	< 200	144	0.019-0.031	0.019-0.031	0.024-0.039	0.035-0.059	0.040-0.067	0.050-0.083	0.058-0.096	0.063-0.104
	● Nodular Graphite, Malleable Cast Iron	200-300	108	0.019-0.031	0.019-0.031	0.020-0.033	0.026-0.044	0.030-0.050	0.030-0.050	0.040-0.067	0.050-0.083
Titanium	○ Titanium unalloyed	< 200	67	0.005-0.008	0.009-0.015	0.018-0.030	0.025-0.041	0.029-0.049	0.034-0.056	0.041-0.069	0.046-0.077
	○ Titanium alloyed	< 270	60	0.004-0.006	0.008-0.013	0.015-0.025	0.020-0.034	0.025-0.041	0.028-0.047	0.035-0.058	0.039-0.065
	○ Titanium alloyed	270-350	53	0.004-0.006	0.008-0.013	0.015-0.025	0.020-0.034	0.025-0.041	0.028-0.047	0.035-0.058	0.039-0.065
Nickel	○ Nickel unalloyed	< 150	48	0.017-0.029	0.017-0.029	0.026-0.043	0.026-0.043	0.035-0.058	0.043-0.071	0.046-0.077	0.052-0.087
	○ Nickel alloyed	< 270	40	0.012-0.019	0.012-0.019	0.017-0.029	0.017-0.029	0.023-0.038	0.027-0.045	0.029-0.048	0.035-0.058
	○ Nickel alloyed	270-350	22	0.012-0.019	0.012-0.019	0.017-0.029	0.017-0.029	0.023-0.038	0.027-0.045	0.029-0.048	0.035-0.058
Copper	○ Copper	< 100	120	0.038-0.063	0.038-0.063	0.053-0.088	0.053-0.088	0.060-0.100	0.060-0.100	0.068-0.113	0.075-0.125
	○ Beta Brass, Bronze	< 200	120	0.038-0.063	0.038-0.063	0.053-0.088	0.053-0.088	0.060-0.100	0.060-0.100	0.068-0.113	0.075-0.125
	○ Alpha Brass	< 200	120	0.038-0.063	0.038-0.063	0.053-0.088	0.053-0.088	0.060-0.100	0.060-0.100	0.068-0.113	0.075-0.125
	○ High strength Bronze	< 470	90	0.019-0.031	0.019-0.031	0.026-0.044	0.026-0.044	0.030-0.050	0.030-0.050	0.034-0.056	0.038-0.063
Aluminium	○ Aluminium Magnesium unalloyed	< 100	126	0.038-0.063	0.038-0.063	0.075-0.125	0.150-0.250	0.150-0.250	0.150-0.250	0.225-0.375	0.375-0.625
	○ Aluminium Alloy < 5% Si	< 150	106	0.038-0.063	0.038-0.063	0.075-0.125	0.150-0.250	0.150-0.250	0.150-0.250	0.225-0.375	0.375-0.625
	○ Aluminium Alloy 5 to 10% Si	< 120	76	0.038-0.063	0.038-0.063	0.075-0.125	0.150-0.250	0.150-0.250	0.150-0.250	0.225-0.375	0.375-0.625
	○ Aluminium Alloy > 10% Si	-	76	0.038-0.063	0.038-0.063	0.075-0.125	0.150-0.250	0.150-0.250	0.150-0.250	0.225-0.375	0.375-0.625
Synthetic	○ Duroplastics (short chipping)	-	210	0.006-0.010	0.011-0.019	0.017-0.028	0.023-0.038	0.027-0.045	0.033-0.055	0.044-0.073	0.055-0.091
	○ Thermoplastics (long chipping)	-	210	0.006-0.010	0.011-0.019	0.017-0.028	0.023-0.038	0.027-0.045	0.033-0.055	0.044-0.073	0.055-0.091
	○ Fibre reinforced synthetic materials	-	90	0.006-0.010	0.011-0.019	0.017-0.028	0.023-0.038	0.027-0.045	0.033-0.055	0.044-0.073	0.055-0.091

COATED O3K END MILL FEEDS AND SPEEDS



$ap = 1.5 \times d$
 $ae = 0.1 \times d$
 Side Milling = fz

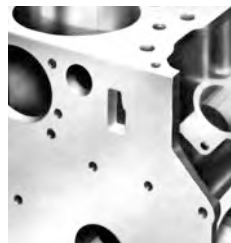
Material Type	Hardness HRC	Recommended Surface Speed in m/min	Recommended feed in mm per tooth (fz) Use 50% of recommended feed rate for long series end mills End Mill Diameter in mm									
			4	5	6	8	10	12	14	16	18	20
Hardened Steel	● < 32	75	0.014-0.023	0.020-0.034	0.023-0.039	0.031-0.051	0.038-0.064	0.047-0.079	0.053-0.089	0.060-0.100	0.067-0.111	0.070-0.116
	○ 33-41	55	0.006-0.010	0.008-0.013	0.009-0.015	0.013-0.021	0.015-0.025	0.019-0.031	0.022-0.036	0.023-0.038	0.023-0.038	0.023-0.038

COATED O3K END MILL FEEDS AND SPEEDS



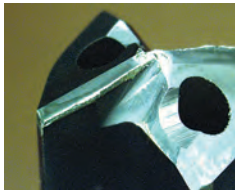
$ap = 1.0 \times d$
 $ae = 0.1 \times d$
 Side Milling = fz

Material Type	Hardness HRC	Recommended Surface Speed in m/min	Recommended feed in mm per tooth (fz) Use 50% of recommended feed rate for long series end mills End Mill Diameter in mm									
			4	5	6	8	10	12	14	16	18	20
Hardened Steel	○ 42-50	50	0.006-0.010	0.008-0.013	0.008-0.013	0.013-0.021	0.016-0.026	0.019-0.031	0.022-0.036	0.022-0.36	0.023-0.038	0.023-0.038



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AN EXAMPLE OF BEFORE AND AFTER REGRINDING



Regrind Services

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Somta offers a cost effective value-added service of regrinding of any used carbide tooling, either standard or special form. This enables lower machining costs over the life of the solid carbide tool, with enhanced tool performance.



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Coupled to the solid carbide cutting tool regrind service, Somta also offers a recoating service, using its range of high performance thin film PVD coatings to further improve performance of original and reground carbide cutting tools.

The material and properties of the coating used is best matched to solid carbide cutting tool substrate material allowing the coated solid carbide tool to be successfully employed under the extreme conditions of hard machining and typically permits much faster and more economical machining of dies.



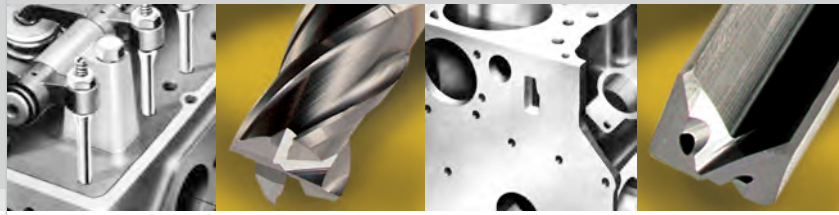
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