



Dental Solutions for

# IMPLANTS

Vol 1



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## Screw



### TORQUE INTERNAL MILLING

AE-LNBD-H (pg 35-37)  
WXL-LN-EDS (pg 38-39)



## Abutment



### PRE-MILLING BLANK ROUGHING

AE-VMS (pg 30-31)  
AE-CR-VMS (pg 32-33)  
AE-VMSS (pg 34)



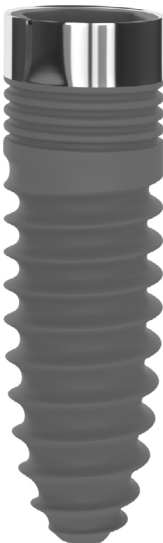
### RADIUS MILLING

PHX-LN-CRE (pg 40)  
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### UNDERCUTTING

EXO-MG-TSC (pg 43)



## Implant Fixture



### DRILLING

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### THREADING

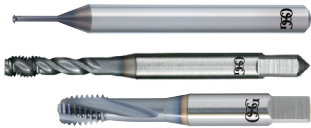
WH-VM-PNC (pg 25)  
A-SFT (pg 26-28)  
VC-10 Ti (pg 29)

## Holemaking



Product series	List Number	Brand	Application	Discount Code	Page
AD-LDS	5190	A Brand	Countersink	ADR	9
WX-MS-GDS	5330	EXOCARB® Max Mini	Shallow Hole Drilling (3D)	HTE	10-17
MRS-GDL	5340	EXOCARB® Max Mini	Deep Hole Drilling (10D)	HTE	18-19
ADO-MICRO-2D	6501	A Brand	Shallow Hole Drilling (2D)	ADR	20
ADO-MICRO-5D	6502	A Brand	Shallow Hole Drilling (5D)	ADR	21
ADO-MICRO-12D	6503	A Brand	Deep Hole Drilling (12D)	ADR	22
ADO-MICRO-20D	6504	A Brand	Deep Hole Drilling (20D)	ADR	23
ADO-MICRO-30D	6505	A Brand	Deep Hole Drilling (30D)	ADR	9

## Threading



Product series	List Number	Brand	Application	Discount Code	Page
WH-VM-PNC	41300	EXOCARB®	Thread Milling	HTE	25
A-SFT	16500	A Brand	Threading	ATP	26-28
VC-10 Ti	345 Ti	EXOTAP®	Threading	EXT	29

## Milling



Product series	List Number	Brand	Application	Discount Code	Page
AE-VMS	8200 8205	A Brand	Pre-Milling Blank Roughing	AEM	30-31
AE-CR-VMS	8210 8215	A Brand	Pre-Milling Blank Roughing	AEM	32-33
AE-VMSS	8206	A Brand	Pre-Milling Blank Roughing	AEM	34
AE-LNBD-H	8590	A Brand	Torque Internal Milling	AEM	35-37
WXL-LN-EDS	3791	EXOCARB®	Torque Internal Milling	HTE	38-39
PHX-LN-CRE	9592	EXOPRO®	Radius Milling	EP	40
WXL-LN-EBD	3790	EXOCARB®	Radius Milling	HTE	41-42

## Undercutting



Product series	List Number	Brand	Application	Discount Code	Page
EXO-MG-TSC	9152	EXOCARB®	Undercut End Mill	HTE	43

## Innovation, Service & Global Network

Total solution from start to finish

OSG is the world's largest manufacturer of round cutting tools. Established in 1938, OSG has a longstanding reputation as a total solution cutting tool provider throughout the manufacturing industry. Gaining the support and trust of our

customers has always been OSG's commitment. Through our innovative technological know-how, exceptional services, and out-of-the-box thinking, we can offer tailored support for your dental application needs.



*shaping your dreams*

KNOW-HOW

01

With over 80 years of history and proven success in the cutting tool sector, OSG caters to a wide array of industries including dental, medical, automotive, aerospace, energy, and mold & die.

ABSOLUTE  
QUALITY  
CONTROL

02

From the production of tool material, creation of tool geometry, to the development of our own proprietary coatings, OSG maintains absolute control over every aspect of its manufacturing capabilities.

TAILORED  
SOLUTIONS

03

OSG offers personalized support for each of our clients and their individual needs, from application evaluation to tool drawing and tailored proposals.

AFTER SALES  
SUPPORT



















04

Through our world class service and on-site technical performance, OSG is committed to ensuring quality tooling, performance and total satisfaction.



## OSG Product Treatments

OSG's surface treatments are designed to meet customer needs through comprehensive technology by providing wear resistance, seizure resistance, corrosion resistance and mold release. OSG proprietary treatments provide a range of thicknesses, hardnesses and oxidation temperatures so you are sure to find the best match for any application.

Coating	Coating Color	Type	Thickness (µm)	Hardness (HV)	Oxidation Temp. (°C)	Application
 DUARISE	 Black Gray	Cr multilayer	1~5	3100	1100	<b>For milling steel, stainless steel &amp; hardened steel.</b> A PVD coating with excellent surface hardness and wear resistance, excellent heat resistance and low coefficient of friction to reduce material adhesion.
 DUROREY	 Black Gray	SiC-containing Nano Layered Periodic	1~5	4180	1300	<b>Ideally suited for Hardened steel &gt; 50 HRC.</b> Also works in: Cast Iron, Carbon Steel, Alloy Steel, Die Steel, Hardened Steel 35-50 HRC. Use High Speed Machining Techniques to optimize performance.
 EgiAs	 Iridescent Red	Nano multilayer	3~5	3200	1100	<b>For drilling steel, stainless steel, cast iron, aluminum &amp; hardened steel.</b> A PVD coating with excellent surface hardness and wear resistance, excellent heat resistance and low coefficient of friction to reduce material adhesion.
 WXS	 Black Gray	SiC	1~5	3500	1300	<b>For machining stainless steel &amp; hardened steel.</b> A PVD coating with excellent surface hardness and wear resistance, excellent heat resistance and low coefficient of friction to reduce material adhesion.
 WXL	 Black Gray	Cr	1~5	3100	1100	<b>For drilling &amp; milling steel, stainless steel &amp; hardened steel.</b> A PVD coating with excellent surface hardness and wear resistance, excellent heat resistance and low coefficient of friction to reduce material adhesion.
 EXO	 Black Violet	TiAlN multilayer	3	2800	850	<b>For machining steel, stainless steel, cast iron &amp; heat resistant alloys.</b> A PVD coating with high surface hardness and wear resistance, very good heat resistance and low coefficient of friction to reduce material adhesion.
 TiAlN	 Black Violet	TiAlN	3	2800	800	<b>For machining steel, stainless steel, cast iron &amp; heat resistant alloys.</b> A PVD coating with high surface hardness and wear resistance, very good heat resistance and low coefficient of friction to reduce material adhesion.
 V	 Blue Gray	TiCN multilayer	3	2700	400	<b>For drilling &amp; tapping steel, stainless steel, aluminum &amp; heat resistant alloys.</b> A PVD coating with high surface hardness and wear resistance, good heat resistance and low coefficient of friction to reduce material adhesion.
 SS	 Black Violet	TiAlN	1	2800	800	<b>For drilling &amp; tapping steel, stainless steel, &amp; heat resistant alloys.</b> A PVD coating with high wear & abrasion resistance, very good heat resistance and high surface smoothness to reduce material adhesion.






## Tool Materials

<b>HSS</b>	HSS	<b>HSSE</b>	High Vanadium HSS	<b>PCD</b>	PCD
<b>HSS-Co</b>	HSS Cobalt	<b>XPM</b>	High Grade Powder Metallurgy HSS	<b>STEEL</b>	Steel
<b>VC10</b>	Powder Metallurgy HSS	<b>CERMET</b>	CERMET		
<b>CBN</b>	CBN	<b>CARBIDE</b>	Tungsten Carbide		



















## Surface Treatment

<b>BR</b>	Bright	<b>EXO<sup>®</sup></b>	Multi-Layer TiAlN Coating	<b>TiCN</b>	TiCN Coating
<b>CrN</b>	CrN Coating	<b>HR</b>	HR Coating	<b>TiN</b>	TiN Coating
<b>DIA</b>	OSG Patented Diamond Coating	<b>IchAda</b>	IchAda Coating	<b>V</b>	OSG Special Multi-Layer TiCN Coating
<b>DLC-IGUSS</b>	DLC-IGUSS Coating	<b>Ni</b>	Nitride Coating	<b>WD1</b>	WD1 Coating
<b>DLC</b>	DLC Coating	<b>N S/O</b>	Nitride/ Steam Oxide Coating	<b>WXL</b>	WXL <sup>®</sup> Coating
<b>DUARISE</b>	Duarise Coating	<b>S/O</b>	Steam Oxide Coating	<b>WXS</b>	WXS <sup>®</sup> Coating
<b>DUROREY</b>	DUROREY Coating	<b>SS</b>	Super Smooth	<b>12µm</b>	Coating Thickness
<b>EgiAs</b>	EgiAs Coating	<b>TiAlN</b>	TiAlN Coating		























## Tool Styles

<b>FORMING</b>	Forming	<b>STRAIGHT FLUTE</b>	Straight Flute		Corner Radius	<b>HF</b>	High Feed Radius
<b>THREAD MILL</b>	Thread Mills	<b>ROUND DIES</b>	Round Dies		Corner Chamfer		
<b>SPIRAL FLUTE</b>	Spiral Flute	<b>THREAD GAGES</b>	Thread Gages		Ball		
<b>SPIRAL POINT</b>	Spiral Point		Square End		Taper Barrel		

## Tool Dimensions

<b>EXTRA LONG</b>	Extra Long Length		Center Cutting		Fine Rough
<b>LONG</b>	Long Length		Non-Center Cutting		Rough Finish
<b>JOBBERS</b>	Jobber Length		Radius Tolerance		Product Units
<b>TAPER</b>	Taper Length		Milling Diameter Tolerance		Drill Number of Flutes
<b>REG</b>	Regular Length		Coolant-Through		Tap Number of Flutes
<b>STUB</b>	Stub Length		Helix Angle		End Mill Number of Flutes
<b>LH</b>	Left Hand		Tool Tolerance		Shrink Fit
<b>LHS</b>	Left Hand Spiral		Chamfer Lead		Shank Tolerance
<b>STI</b>	Screw Thread Insert		Rough		Weldon Flat

## Applications

	Helical Drilling		V-Slotting		H-Slotting		G-Side Milling
	Drilling		Chamfering		C-Slotting		Ramping
	Drilling Inclined Surface		Face Milling		Contouring		Vertical Slope
	Drilling Curved Surface		Side Milling		Plunging		Horizontal Slope
	Centering		D-Side Milling		Profile Milling		
	Countersinking		G-Side Milling		Profile Milling		

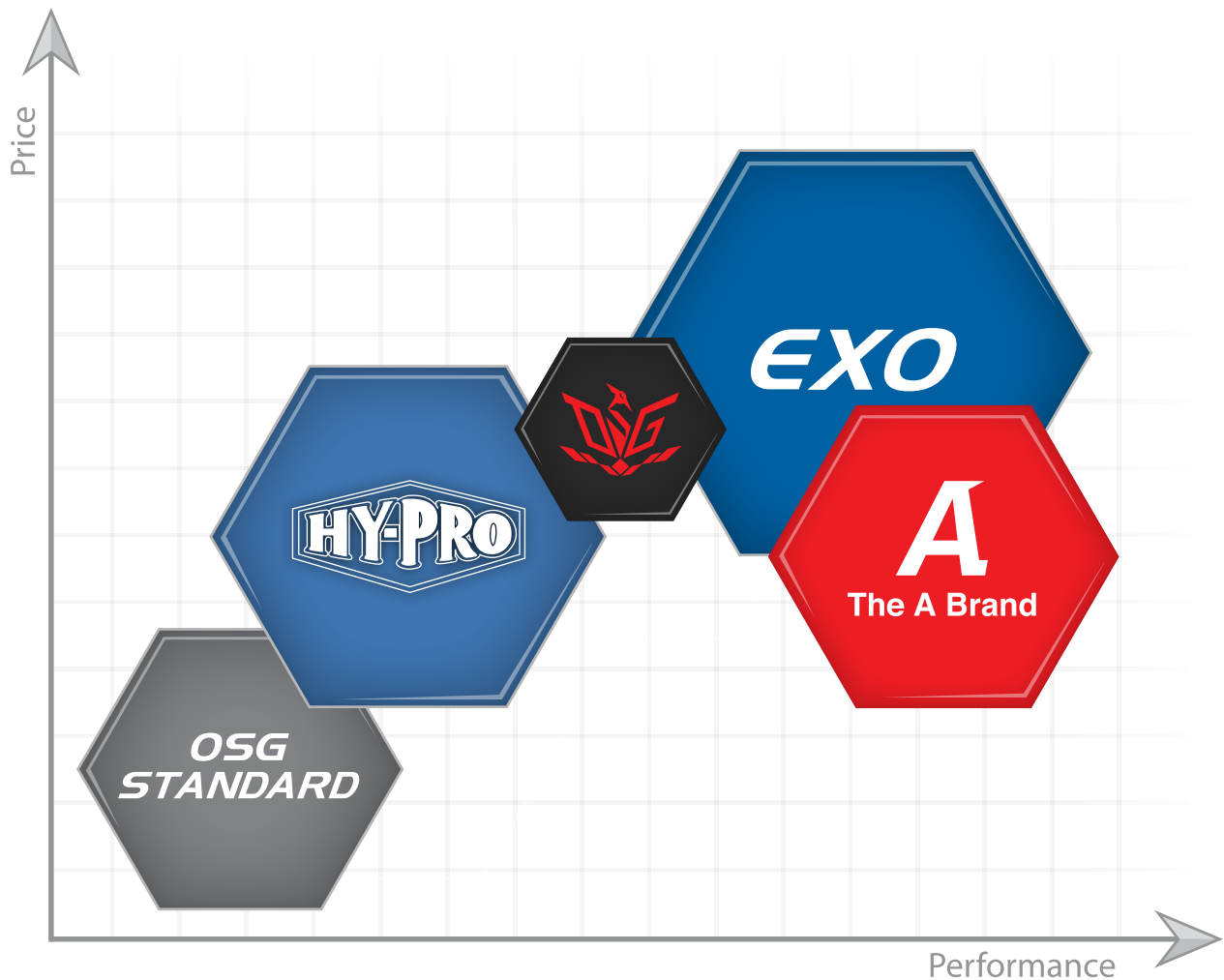
## Other Icons

	Speeds & Feeds		Insert Pages		New		While Supplies Last
	Packed Quantity		Accessory Pages		New Sizes		Discount Code

## OSG Product Overview - The Total Solution

The purpose of this Brand Index is to illustrate OSG's Brand hierarchy and to better help you select the best tool for your machining needs.

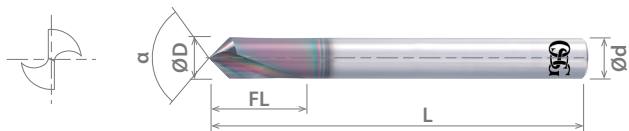
From the value products under our OSG Standard brands to the high performance products under the EXOCARB®, EXOPRO® and our A Brand, OSG offers a broad range of tools to meet your application requirements.





## AD-LDS

LIST 5190, A BRAND AD-LDS



EDP Number		Diameter (D)					Min. Drill Hole Size	Flute Length	Overall Length	Shank Diameter		Point Angle	Helix
		Fractional Size	Wire Gage	Letter Size	mm	Inch				d (in)	d (mm)		
8688933	●	-	-	-	3.000	0.11811	1.20	9.00	48.00	-	3.00	90	12
8688957	●	-	-	-	3.000	0.11811	1.20	9.00	48.00	-	3.00	120	25
8688966	●	-	-	-	3.000	0.11811	1.20	9.00	48.00	-	3.00	140	25
8688934	●	-	-	-	4.000	0.15748	1.50	12.00	54.00	-	4.00	90	12
8688958	●	-	-	-	4.000	0.15748	1.50	12.00	54.00	-	4.00	120	25
8688967	●	-	-	-	4.000	0.15748	1.50	12.00	54.00	-	4.00	140	25
519012017	●	-	-	-	5.000	0.19685	1.70	14.00	70.00	-	5.00	90	12
519022017	●	-	-	-	5.000	0.19685	1.70	14.00	70.00	-	5.00	120	25
519032017	●	-	-	-	5.000	0.19685	1.70	14.00	70.00	-	5.00	140	25
8688935	●	-	-	-	6.000	0.23622	1.90	15.00	72.00	-	6.00	90	12
8688959	●	-	-	-	6.000	0.23622	1.90	15.00	72.00	-	6.00	120	25
8688968	●	-	-	-	6.000	0.23622	1.90	15.00	72.00	-	6.00	140	25
519012517	●	1/4	-	E	6.350	0.25000	1.90	17.00	75.00	0.250	-	90	12
519022517	●	1/4	-	E	6.350	0.25000	1.90	17.00	75.00	0.250	-	120	25
519032517	●	1/4	-	E	6.350	0.25000	1.90	17.00	75.00	0.250	-	140	25
8688936	●	-	-	-	8.000	0.31496	2.10	20.00	81.00	-	8.00	90	12
8688960	●	-	-	-	8.000	0.31496	2.10	20.00	81.00	-	8.00	120	25
8688969	●	-	-	-	8.000	0.31496	2.10	20.00	81.00	-	8.00	140	25
519013817	●	3/8	-	-	9.525	0.37500	2.30	24.00	93.00	0.375	-	90	12
519023817	●	3/8	-	-	9.525	0.37500	2.30	24.00	93.00	0.375	-	120	25
519033817	●	3/8	-	-	9.525	0.37500	2.30	24.00	93.00	0.375	-	140	25
8688937	●	-	-	-	10.000	0.39370	2.50	24.00	93.00	-	10.00	90	12
8688961	●	-	-	-	10.000	0.39370	2.50	24.00	93.00	-	10.00	120	25
8688970	●	-	-	-	10.000	0.39370	2.50	24.00	93.00	-	10.00	140	25
8688938	●	-	-	-	12.000	0.47244	2.50	28.00	108.00	-	12.00	90	12
8688962	●	-	-	-	12.000	0.47244	2.50	28.00	108.00	-	12.00	120	25
8688971	●	-	-	-	12.000	0.47244	2.50	28.00	108.00	-	12.00	140	25
519015017	●	1/2	-	-	12.700	0.50000	3.00	36.00	111.00	0.500	-	90	12
519025017	●	1/2	-	-	12.700	0.50000	3.00	36.00	111.00	0.500	-	120	25
519035017	●	1/2	-	-	12.700	0.50000	3.00	36.00	111.00	0.500	-	140	25
519016217	●	5/8	-	-	15.875	0.62500	5.00	41.00	118.00	0.625	-	90	12
519026217	●	5/8	-	-	15.875	0.62500	5.00	41.00	118.00	0.625	-	120	25
519036217	●	5/8	-	-	15.875	0.62500	5.00	41.00	118.00	0.625	-	140	25
519016317	●	-	-	-	16.000	0.62992	5.00	41.00	118.00	-	16.00	90	12
519026317	●	-	-	-	16.000	0.62992	5.00	41.00	118.00	-	16.00	120	25
519036317	●	-	-	-	16.000	0.62992	5.00	41.00	118.00	-	16.00	140	25
519017517	●	3/4	-	-	19.050	0.75000	5.00	46.00	132.00	0.750	-	90	12
519027517	●	3/4	-	-	19.050	0.75000	5.00	46.00	132.00	0.750	-	120	25
519037517	●	3/4	-	-	19.050	0.75000	5.00	46.00	132.00	0.750	-	140	25
519017917	●	-	-	-	20.000	0.78740	5.00	46.00	132.00	-	20.00	90	12
519027917	●	-	-	-	20.000	0.78740	5.00	46.00	132.00	-	20.00	120	25
519037917	●	-	-	-	20.000	0.78740	5.00	46.00	132.00	-	20.00	140	25
519019817	●	-	-	-	25.000	0.98425	5.00	53.00	151.00	-	25.00	90	12
519029817	●	-	-	-	25.000	0.98425	5.00	53.00	151.00	-	25.00	120	25
519039817	●	-	-	-	25.000	0.98425	5.00	53.00	151.00	-	25.00	140	25

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○					

○ good ⊙ best



# HOLEMAKING

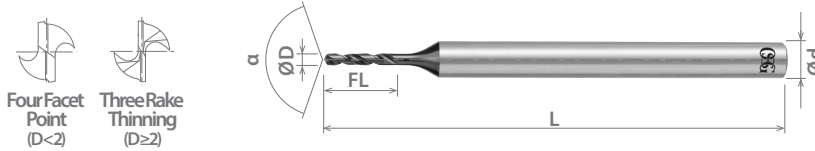
EXOCARB® MAX MINI - High Performance Micro Carbide Drills

## WX-MS-GDS

LIST 5330, EXOCARB® WX-MS-GDS, Precision Drill

CARBIDE	TiAIN	2 FLUTE	JOBBER	30°	SHANK h6	PACKED 1 PIECE
---------	-------	---------	--------	-----	----------	----------------

Cutting Diameter Tolerance		
Size (mm)	mm	inch
0.2 ≤ D ≤ 5	+0 / -0.010	+0 / -0.0004



EDP Number	Diameter (D)					Flute Length	Overall Length	Shank Diameter	Point Angle	
	Fractional Size	Wire Gage	Letter Size	mm	Inch					
3300020	●	-	-	-	0.200	0.00787	1.50	38.00	3.00	140
3300021	●	-	-	-	0.210	0.00827	1.50	38.00	3.00	140
3300022	●	-	-	-	0.220	0.00866	1.50	38.00	3.00	140
3300023	●	-	-	-	0.230	0.00906	1.50	38.00	3.00	140
3300024	●	-	-	-	0.240	0.00945	1.50	38.00	3.00	140
3300025	●	-	-	-	0.250	0.00984	1.50	38.00	3.00	140
3300026	●	-	-	-	0.260	0.01024	1.50	38.00	3.00	140
3300027	●	-	-	-	0.270	0.01063	1.50	38.00	3.00	140
3300028	●	-	-	-	0.280	0.01102	1.50	38.00	3.00	140
3300029	●	-	-	-	0.290	0.01142	1.50	38.00	3.00	140
3300030	●	-	-	-	0.300	0.01181	1.50	38.00	3.00	140
3300031	●	-	-	-	0.310	0.01220	2.00	38.00	3.00	140
3300032	●	-	-	-	0.320	0.01260	2.00	38.00	3.00	140
3300033	●	-	-	-	0.330	0.01299	2.00	38.00	3.00	140
3300034	●	-	-	-	0.340	0.01339	2.00	38.00	3.00	140
3300035	●	-	-	-	0.350	0.01378	2.00	38.00	3.00	140
3300036	●	-	-	-	0.360	0.01417	2.00	38.00	3.00	140
3300037	●	-	-	-	0.370	0.01457	2.00	38.00	3.00	140
3300038	●	-	-	-	0.380	0.01496	2.00	38.00	3.00	140
3300039	●	-	-	-	0.390	0.01535	2.50	38.00	3.00	140
3300040	●	-	-	-	0.400	0.01575	2.50	38.00	3.00	140
3300041	●	-	-	-	0.410	0.01614	2.50	38.00	3.00	140
3300042	●	-	-	-	0.420	0.01654	2.50	38.00	3.00	140
3300043	●	-	-	-	0.430	0.01693	2.50	38.00	3.00	140
3300044	●	-	-	-	0.440	0.01732	2.50	38.00	3.00	140
3300045	●	-	-	-	0.450	0.01772	2.50	38.00	3.00	140
3300046	●	-	-	-	0.460	0.01811	2.50	38.00	3.00	140
3300047	●	-	-	-	0.470	0.01850	2.50	38.00	3.00	140
3300048	●	-	-	-	0.480	0.01890	2.50	38.00	3.00	140
3300049	●	-	-	-	0.490	0.01929	3.00	38.00	3.00	140
3300050	●	-	-	-	0.500	0.01969	3.00	38.00	3.00	140
3300051	●	-	-	-	0.510	0.02008	3.00	38.00	3.00	140
3300052	●	-	-	-	0.520	0.02047	3.00	38.00	3.00	140
3300053	●	-	-	-	0.530	0.02087	3.00	38.00	3.00	140
3300054	●	-	-	-	0.540	0.02126	3.50	38.00	3.00	140
3300055	●	-	-	-	0.550	0.02165	3.50	38.00	3.00	140
3300056	●	-	-	-	0.560	0.02205	3.50	38.00	3.00	140
3300057	●	-	-	-	0.570	0.02244	3.50	38.00	3.00	140
3300058	●	-	-	-	0.580	0.02283	3.50	38.00	3.00	140
3300059	●	-	-	-	0.590	0.02323	3.50	38.00	3.00	140
3300060	●	-	-	-	0.600	0.02362	3.50	38.00	3.00	140
3300061	●	-	-	-	0.610	0.02402	4.00	38.00	3.00	140
3300062	●	-	-	-	0.620	0.02441	4.00	38.00	3.00	140
3300063	●	-	-	-	0.630	0.02480	4.00	38.00	3.00	140
3300064	●	-	-	-	0.640	0.02520	4.00	38.00	3.00	140
3300065	●	-	-	-	0.650	0.02559	4.00	38.00	3.00	140
3300066	●	-	-	-	0.660	0.02598	4.00	38.00	3.00	140
3300067	●	-	-	-	0.670	0.02638	4.00	38.00	3.00	140
3300068	●	-	-	-	0.680	0.02677	4.50	38.00	3.00	140
3300069	●	-	-	-	0.690	0.02717	4.50	38.00	3.00	140
3300070	●	-	-	-	0.700	0.02756	4.50	38.00	3.00	140
3300071	●	-	-	-	0.710	0.02795	4.50	38.00	3.00	140
3300072	●	-	-	-	0.720	0.02835	4.50	38.00	3.00	140
3300073	●	-	-	-	0.730	0.02874	4.50	38.00	3.00	140
3300074	●	-	-	-	0.740	0.02913	4.50	38.00	3.00	140

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



## WX-MS-GDS (Continued)

LIST 5330, EXOCARB® WX-MS-GDS, Precision Drill

CARBIDE	TiAlN	2 FLUTE	JOBBER	30°	SHANK h6	PACKED 1 PIECE
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EDP Number		Diameter (D)					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
3300075	●	-	-	-	0.750	0.02953	4.50	38.00	3.00	140
3300076	●	-	-	-	0.760	0.02992	5.00	38.00	3.00	140
3300077	●	-	-	-	0.770	0.03031	5.00	38.00	3.00	140
3300078	●	-	-	-	0.780	0.03071	5.00	38.00	3.00	140
3300079	●	-	-	-	0.790	0.03110	5.00	38.00	3.00	140
3300080	●	-	-	-	0.800	0.03150	5.00	38.00	3.00	140
3300081	●	-	-	-	0.810	0.03189	5.00	38.00	3.00	140
3300082	●	-	-	-	0.820	0.03228	5.00	38.00	3.00	140
3300083	●	-	-	-	0.830	0.03268	5.00	38.00	3.00	140
3300084	●	-	-	-	0.840	0.03307	5.00	38.00	3.00	140
3300085	●	-	-	-	0.850	0.03346	5.00	38.00	3.00	140
3300086	●	-	-	-	0.860	0.03386	5.50	38.00	3.00	140
3300087	●	-	-	-	0.870	0.03425	5.50	38.00	3.00	140
3300088	●	-	-	-	0.880	0.03465	5.50	38.00	3.00	140
3300089	●	-	-	-	0.890	0.03504	5.50	38.00	3.00	140
3300090	●	-	-	-	0.900	0.03543	5.50	38.00	3.00	140
3300091	●	-	-	-	0.910	0.03583	5.50	38.00	3.00	140
3300092	●	-	-	-	0.920	0.03622	5.50	38.00	3.00	140
3300093	●	-	-	-	0.930	0.03661	5.50	38.00	3.00	140
3300094	●	-	-	-	0.940	0.03701	5.50	38.00	3.00	140
3300095	●	-	-	-	0.950	0.03740	5.50	38.00	3.00	140
3300096	●	-	-	-	0.960	0.03780	6.00	38.00	3.00	140
3300097	●	-	-	-	0.970	0.03819	6.00	38.00	3.00	140
3300098	●	-	-	-	0.980	0.03858	6.00	38.00	3.00	140
3300099	●	-	-	-	0.990	0.03898	6.00	38.00	3.00	140
3300100	●	-	-	-	1.000	0.03937	6.00	38.00	3.00	140
3300101	●	-	-	-	1.010	0.03976	6.00	38.00	3.00	140
3300102	●	-	-	-	1.020	0.04016	6.00	38.00	3.00	140
3300103	●	-	-	-	1.030	0.04055	6.00	38.00	3.00	140
3300104	●	-	-	-	1.040	0.04094	6.00	38.00	3.00	140
3300105	●	-	-	-	1.050	0.04134	6.00	38.00	3.00	140
3300106	●	-	-	-	1.060	0.04173	6.00	38.00	3.00	140
3300107	●	-	-	-	1.070	0.04213	7.00	42.00	3.00	140
3300108	●	-	-	-	1.080	0.04252	7.00	42.00	3.00	140
3300109	●	-	-	-	1.090	0.04291	7.00	42.00	3.00	140
3300110	●	-	-	-	1.100	0.04331	7.00	42.00	3.00	140
3300111	●	-	-	-	1.110	0.04370	7.00	42.00	3.00	140
3300112	●	-	-	-	1.120	0.04409	7.00	42.00	3.00	140
3300113	●	-	-	-	1.130	0.04449	7.00	42.00	3.00	140
3300114	●	-	-	-	1.140	0.04488	7.00	42.00	3.00	140
3300115	●	-	-	-	1.150	0.04528	7.00	42.00	3.00	140
3300116	●	-	-	-	1.160	0.04567	7.00	42.00	3.00	140
3300117	●	-	-	-	1.170	0.04606	7.00	42.00	3.00	140
3300118	●	-	-	-	1.180	0.04646	7.00	42.00	3.00	140
3300119	●	-	-	-	1.190	0.04685	8.00	42.00	3.00	140
3300120	●	-	-	-	1.200	0.04724	8.00	42.00	3.00	140
3300121	●	-	-	-	1.210	0.04764	8.00	42.00	3.00	140
3300122	●	-	-	-	1.220	0.04803	8.00	42.00	3.00	140
3300123	●	-	-	-	1.230	0.04843	8.00	42.00	3.00	140
3300124	●	-	-	-	1.240	0.04882	8.00	42.00	3.00	140

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



CONTINUED

Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○					

○ good ⊙ best

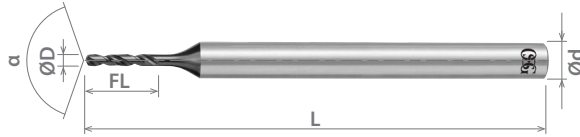
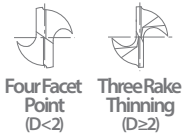


# HOLEMAKING

EXOCARB® MAX MINI - High Performance Micro Carbide Drills

## WX-MS-GDS (Continued)

LIST 5330, EXOCARB® WX-MS-GDS, Precision Drill



CARBIDE	TiAlN	2 FLUTE	JOBBER	30°	SHANK h6	PACKED 1 PIECE
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Cutting Diameter Tolerance		
Size (mm)	mm	inch
0.2 ≤ D ≤ 5	+0 / -0.010	+0 / -0.0004

EDP Number		Diameter (D)					Flute Length FL (mm)	Overall Length L (mm)	Shank Diameter d (mm)	Point Angle α
		Fractional Size	Wire Gage	Letter Size	mm	Inch				
3300125	●	-	-	-	1.250	0.04921	8.00	42.00	3.00	140
3300126	●	-	-	-	1.260	0.04961	8.00	42.00	3.00	140
3300127	●	-	-	-	1.270	0.05000	8.00	42.00	3.00	140
3300128	●	-	-	-	1.280	0.05039	8.00	42.00	3.00	140
3300129	●	-	-	-	1.290	0.05079	8.00	42.00	3.00	140
3300130	●	-	-	-	1.300	0.05118	8.00	42.00	3.00	140
3300131	●	-	-	-	1.310	0.05157	8.00	42.00	3.00	140
3300132	●	-	-	-	1.320	0.05197	8.00	42.00	3.00	140
3300133	●	-	-	-	1.330	0.05236	9.00	42.00	3.00	140
3300134	●	-	-	-	1.340	0.05276	9.00	42.00	3.00	140
3300135	●	-	-	-	1.350	0.05315	9.00	42.00	3.00	140
3300136	●	-	-	-	1.360	0.05354	9.00	42.00	3.00	140
3300137	●	-	-	-	1.370	0.05394	9.00	42.00	3.00	140
3300138	●	-	-	-	1.380	0.05433	9.00	42.00	3.00	140
3300139	●	-	-	-	1.390	0.05472	9.00	42.00	3.00	140
3300140	●	-	-	-	1.400	0.05512	9.00	42.00	3.00	140
3300141	●	-	-	-	1.410	0.05551	9.00	42.00	3.00	140
3300142	●	-	-	-	1.420	0.05591	9.00	42.00	3.00	140
3300143	●	-	-	-	1.430	0.05630	9.00	42.00	3.00	140
3300144	●	-	-	-	1.440	0.05669	9.00	42.00	3.00	140
3300145	●	-	-	-	1.450	0.05709	9.00	42.00	3.00	140
3300146	●	-	-	-	1.460	0.05748	9.00	42.00	3.00	140
3300147	●	-	-	-	1.470	0.05787	9.00	42.00	3.00	140
3300148	●	-	-	-	1.480	0.05827	9.00	42.00	3.00	140
3300149	●	-	-	-	1.490	0.05866	9.00	42.00	3.00	140
3300150	●	-	-	-	1.500	0.05906	9.00	42.00	3.00	140
3300151	●	-	-	-	1.510	0.05945	10.00	42.00	3.00	140
3300152	●	-	-	-	1.520	0.05984	10.00	42.00	3.00	140
3300153	●	-	-	-	1.530	0.06024	10.00	42.00	3.00	140
3300154	●	-	-	-	1.540	0.06063	10.00	42.00	3.00	140
3300155	●	-	-	-	1.550	0.06102	10.00	42.00	3.00	140
3300156	●	-	-	-	1.560	0.06142	10.00	42.00	3.00	140
3300157	●	-	-	-	1.570	0.06181	10.00	42.00	3.00	140
3300158	●	-	-	-	1.580	0.06220	10.00	42.00	3.00	140
3300159	●	-	-	-	1.590	0.06260	10.00	42.00	3.00	140
3300160	●	-	-	-	1.600	0.06299	10.00	42.00	3.00	140
3300161	●	-	-	-	1.610	0.06339	10.00	42.00	3.00	140
3300162	●	-	-	-	1.620	0.06378	10.00	42.00	3.00	140
3300163	●	-	-	-	1.630	0.06417	10.00	42.00	3.00	140
3300164	●	-	-	-	1.640	0.06457	10.00	42.00	3.00	140
3300165	●	-	-	-	1.650	0.06496	10.00	42.00	3.00	140
3300166	●	-	-	-	1.660	0.06535	10.00	42.00	3.00	140
3300167	●	-	-	-	1.670	0.06575	10.00	42.00	3.00	140
3300168	●	-	-	-	1.680	0.06614	10.00	42.00	3.00	140
3300169	●	-	-	-	1.690	0.06654	10.00	42.00	3.00	140
3300170	●	-	-	-	1.700	0.06693	10.00	42.00	3.00	140
3300171	●	-	-	-	1.710	0.06732	11.00	42.00	3.00	140
3300172	●	-	-	-	1.720	0.06772	11.00	42.00	3.00	140
3300173	●	-	-	-	1.730	0.06811	11.00	42.00	3.00	140
3300174	●	-	-	-	1.740	0.06850	11.00	42.00	3.00	140
3300175	●	-	-	-	1.750	0.06890	11.00	42.00	3.00	140
3300176	●	-	-	-	1.760	0.06929	11.00	42.00	3.00	140
3300177	●	-	-	-	1.770	0.06969	11.00	42.00	3.00	140
3300178	●	-	-	-	1.780	0.07008	11.00	42.00	3.00	140
3300179	●	-	-	-	1.790	0.07047	11.00	42.00	3.00	140

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



## WX-MS-GDS (Continued)

LIST 5330, EXOCARB® WX-MS-GDS, Precision Drill

CARBIDE	TiAlN	2 FLUTE	JOBBER	30°	SHANK h6	PACKED 1 PIECE
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EDP Number		Diameter (D)					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
3300180	●	-	-	-	1.800	0.07087	11.00	42.00	3.00	140
3300181	●	-	-	-	1.810	0.07126	11.00	42.00	3.00	140
3300182	●	-	-	-	1.820	0.07165	11.00	42.00	3.00	140
3300183	●	-	-	-	1.830	0.07205	11.00	42.00	3.00	140
3300184	●	-	-	-	1.840	0.07244	11.00	42.00	3.00	140
3300185	●	-	-	-	1.850	0.07283	11.00	42.00	3.00	140
3300186	●	-	-	-	1.860	0.07323	11.00	42.00	3.00	140
3300187	●	-	-	-	1.870	0.07362	11.00	42.00	3.00	140
3300188	●	-	-	-	1.880	0.07402	11.00	42.00	3.00	140
3300189	●	-	-	-	1.890	0.07441	11.00	42.00	3.00	140
3300190	●	-	-	-	1.900	0.07480	11.00	42.00	3.00	140
3300191	●	-	-	-	1.910	0.07520	12.00	50.00	3.00	140
3300192	●	-	-	-	1.920	0.07559	12.00	50.00	3.00	140
3300193	●	-	-	-	1.930	0.07598	12.00	50.00	3.00	140
3300194	●	-	-	-	1.940	0.07638	12.00	50.00	3.00	140
3300195	●	-	-	-	1.950	0.07677	12.00	50.00	3.00	140
3300196	●	-	-	-	1.960	0.07717	12.00	50.00	3.00	140
3300197	●	-	-	-	1.970	0.07756	12.00	50.00	3.00	140
3300198	●	-	-	-	1.980	0.07795	12.00	50.00	3.00	140
3300199	●	-	-	-	1.990	0.07835	12.00	50.00	3.00	140
3300200	●	-	-	-	2.000	0.07874	12.00	50.00	3.00	140
48172201	●	-	-	-	2.010	0.07913	12.00	50.00	3.00	140
48172202	●	-	-	-	2.020	0.07953	12.00	50.00	3.00	140
48172203	●	-	-	-	2.030	0.07992	12.00	50.00	3.00	140
48172204	●	-	-	-	2.040	0.08031	12.00	50.00	3.00	140
3300205	●	-	-	-	2.050	0.08071	12.00	50.00	3.00	140
48172206	●	-	-	-	2.060	0.08110	12.00	50.00	3.00	140
48172207	●	-	-	-	2.070	0.08150	12.00	50.00	3.00	140
48172208	●	-	-	-	2.080	0.08189	12.00	50.00	3.00	140
48172209	●	-	-	-	2.090	0.08228	12.00	50.00	3.00	140
3300210	●	-	-	-	2.100	0.08268	12.00	50.00	3.00	140
48172211	●	-	-	-	2.110	0.08307	12.00	50.00	3.00	140
48172212	●	-	-	-	2.120	0.08346	12.00	50.00	3.00	140
48172213	●	-	-	-	2.130	0.08386	13.00	50.00	3.00	140
48172214	●	-	-	-	2.140	0.08425	13.00	50.00	3.00	140
3300215	●	-	-	-	2.150	0.08465	13.00	50.00	3.00	140
48172216	●	-	-	-	2.160	0.08504	13.00	50.00	3.00	140
48172217	●	-	-	-	2.170	0.08543	13.00	50.00	3.00	140
48172218	●	-	-	-	2.180	0.08583	13.00	50.00	3.00	140
48172219	●	-	-	-	2.190	0.08622	13.00	50.00	3.00	140
3300220	●	-	-	-	2.200	0.08661	13.00	50.00	3.00	140
48172221	●	-	-	-	2.210	0.08701	13.00	50.00	3.00	140
48172222	●	-	-	-	2.220	0.08740	13.00	50.00	3.00	140
48172223	●	-	-	-	2.230	0.08780	13.00	50.00	3.00	140
48172224	●	-	-	-	2.240	0.08819	13.00	50.00	3.00	140
3300225	●	-	-	-	2.250	0.08858	13.00	50.00	3.00	140
48172226	●	-	-	-	2.260	0.08898	13.00	50.00	3.00	140
48172227	●	-	-	-	2.270	0.08937	13.00	50.00	3.00	140
48172228	●	-	-	-	2.280	0.08976	13.00	50.00	3.00	140
48172229	●	-	-	-	2.290	0.09016	13.00	50.00	3.00	140

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



CONTINUED

Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○					

○ good ⊙ best

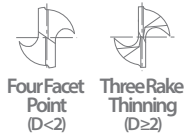


# HOLEMAKING

EXOCARB® MAX MINI - High Performance Micro Carbide Drills

## WX-MS-GDS (Continued)

LIST 5330, EXOCARB® WX-MS-GDS, Precision Drill



CARBIDE	TiAIN	2 FLUTE	JOBBER	30°	SHANK h6	PACKED 1 PIECE
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Cutting Diameter Tolerance		
Size (mm)	mm	inch
0.2 ≤ D ≤ 5	+0 / -0.010	+0 / -0.0004

EDP Number		Diameter (D)					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
3300230	●	-	-	-	2.300	0.09055	13.00	50.00	3.00	140
48172231	●	-	-	-	2.310	0.09094	13.00	50.00	3.00	140
48172232	●	-	-	-	2.320	0.09134	13.00	50.00	3.00	140
48172233	●	-	-	-	2.330	0.09173	13.00	50.00	3.00	140
48172234	●	-	-	-	2.340	0.09213	13.00	50.00	3.00	140
3300235	●	-	-	-	2.350	0.09252	13.00	50.00	3.00	140
48172236	●	-	-	-	2.360	0.09291	13.00	50.00	3.00	140
48172237	●	-	-	-	2.370	0.09331	14.00	50.00	3.00	140
48172238	●	-	-	-	2.380	0.09370	14.00	50.00	3.00	140
48172239	●	-	-	-	2.390	0.09409	14.00	50.00	3.00	140
3300240	●	-	-	-	2.400	0.09449	14.00	50.00	3.00	130
48172241	●	-	-	-	2.410	0.09488	14.00	50.00	3.00	130
48172242	●	-	-	-	2.420	0.09528	14.00	50.00	3.00	130
48172243	●	-	-	-	2.430	0.09567	14.00	50.00	3.00	130
48172244	●	-	-	-	2.440	0.09606	14.00	50.00	3.00	130
3300245	●	-	-	-	2.450	0.09646	14.00	50.00	3.00	130
48172246	●	-	-	-	2.460	0.09685	14.00	50.00	3.00	130
48172247	●	-	-	-	2.470	0.09724	14.00	50.00	3.00	130
48172248	●	-	-	-	2.480	0.09764	14.00	50.00	3.00	130
48172249	●	-	-	-	2.490	0.09803	14.00	50.00	3.00	130
3300250	●	-	-	-	2.500	0.09843	14.00	50.00	3.00	130
48172251	●	-	-	-	2.510	0.09882	14.00	50.00	3.00	130
48172252	●	-	-	-	2.520	0.09921	14.00	50.00	3.00	130
48172253	●	-	-	-	2.530	0.09961	14.00	50.00	3.00	130
48172254	●	-	-	-	2.540	0.10000	14.00	50.00	3.00	130
3300255	●	-	-	-	2.550	0.10039	14.00	50.00	3.00	130
48172256	●	-	-	-	2.560	0.10079	14.00	50.00	3.00	130
48172257	●	-	-	-	2.570	0.10118	14.00	50.00	3.00	130
48172258	●	-	-	-	2.580	0.10157	14.00	50.00	3.00	130
48172259	●	-	-	-	2.590	0.10197	14.00	50.00	3.00	130
3300260	●	-	-	-	2.600	0.10236	14.00	50.00	3.00	130
48172261	●	-	-	-	2.610	0.10276	14.00	50.00	3.00	130
48172262	●	-	-	-	2.620	0.10315	14.00	50.00	3.00	130
48172263	●	-	-	-	2.630	0.10354	14.00	50.00	3.00	130
48172264	●	-	-	-	2.640	0.10394	14.00	50.00	3.00	130
3300265	●	-	-	-	2.650	0.10433	14.00	50.00	3.00	130
48172266	●	-	-	-	2.660	0.10472	16.00	50.00	3.00	130
48172267	●	-	-	-	2.670	0.10512	16.00	50.00	3.00	130
48172268	●	-	-	-	2.680	0.10551	16.00	50.00	3.00	130
48172269	●	-	-	-	2.690	0.10591	16.00	50.00	3.00	130
3300270	●	-	-	-	2.700	0.10630	16.00	50.00	3.00	130
48172271	●	-	-	-	2.710	0.10669	16.00	50.00	3.00	130
48172272	●	-	-	-	2.720	0.10709	16.00	50.00	3.00	130
48172273	●	-	-	-	2.730	0.10748	16.00	50.00	3.00	130
48172274	●	-	-	-	2.740	0.10787	16.00	50.00	3.00	130
3300275	●	-	-	-	2.750	0.10827	16.00	50.00	3.00	130
48172276	●	-	-	-	2.760	0.10866	16.00	50.00	3.00	130
48172277	●	-	-	-	2.770	0.10906	16.00	50.00	3.00	130
48172278	●	-	-	-	2.780	0.10945	16.00	50.00	3.00	130
48172279	●	-	-	-	2.790	0.10984	16.00	50.00	3.00	130
3300280	●	-	-	-	2.800	0.11024	16.00	50.00	3.00	130
48172281	●	-	-	-	2.810	0.11063	16.00	50.00	3.00	130
48172282	●	-	-	-	2.820	0.11102	16.00	50.00	3.00	130
48172283	●	-	-	-	2.830	0.11142	16.00	50.00	3.00	130
48172284	●	-	-	-	2.840	0.11181	16.00	50.00	3.00	130

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



## WX-MS-GDS (Continued)

LIST 5330, EXOCARB® WX-MS-GDS, Precision Drill

CARBIDE	TiAIN	2 FLUTE	JOBBER	30°	SHANK h6	PACKED 1 PIECE
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EDP Number		Diameter (D)					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
3300285	●	-	-	-	2.850	0.11220	16.00	50.00	3.00	130
48172286	●	-	-	-	2.860	0.11260	16.00	50.00	3.00	130
48172287	●	-	-	-	2.870	0.11299	16.00	50.00	3.00	130
48172288	●	-	-	-	2.880	0.11339	16.00	50.00	3.00	130
48172289	●	-	-	-	2.890	0.11378	16.00	50.00	3.00	130
3300290	●	-	-	-	2.900	0.11417	16.00	50.00	3.00	130
48172291	●	-	-	-	2.910	0.11457	16.00	50.00	3.00	130
48172292	●	-	-	-	2.920	0.11496	16.00	50.00	3.00	130
48172293	●	-	-	-	2.930	0.11535	16.00	50.00	3.00	130
48172294	●	-	-	-	2.940	0.11575	16.00	50.00	3.00	130
3300295	●	-	-	-	2.950	0.11614	16.00	50.00	3.00	130
48172296	●	-	-	-	2.960	0.11654	16.00	50.00	3.00	130
48172297	●	-	-	-	2.970	0.11693	16.00	50.00	3.00	130
48172298	●	-	-	-	2.980	0.11732	16.00	50.00	3.00	130
48172299	●	-	-	-	2.990	0.11772	16.00	50.00	3.00	130
3300300	●	-	-	-	3.000	0.11811	16.00	50.00	3.00	130
48172301	●	-	-	-	3.010	0.11850	18.00	56.00	4.00	130
48172302	●	-	-	-	3.020	0.11890	18.00	56.00	4.00	130
48172303	●	-	-	-	3.030	0.11929	18.00	56.00	4.00	130
48172304	●	-	-	-	3.040	0.11969	18.00	56.00	4.00	130
3300305	●	-	-	-	3.050	0.12008	18.00	56.00	4.00	130
48172306	●	-	-	-	3.060	0.12047	18.00	56.00	4.00	130
48172307	●	-	-	-	3.070	0.12087	18.00	56.00	4.00	130
48172308	●	-	-	-	3.080	0.12126	18.00	56.00	4.00	130
48172309	●	-	-	-	3.090	0.12165	18.00	56.00	4.00	130
3300310	●	-	-	-	3.100	0.12205	18.00	56.00	4.00	130
48172311	●	-	-	-	3.110	0.12244	18.00	56.00	4.00	130
48172312	●	-	-	-	3.120	0.12283	18.00	56.00	4.00	130
48172313	●	-	-	-	3.130	0.12323	18.00	56.00	4.00	130
48172314	●	-	-	-	3.140	0.12362	18.00	56.00	4.00	130
3300315	●	-	-	-	3.150	0.12402	18.00	56.00	4.00	130
48172316	●	-	-	-	3.160	0.12441	18.00	56.00	4.00	130
48172317	●	-	-	-	3.170	0.12480	18.00	56.00	4.00	130
48172318	●	-	-	-	3.180	0.12520	18.00	56.00	4.00	130
48172319	●	-	-	-	3.190	0.12559	18.00	56.00	4.00	130
3300320	●	-	-	-	3.200	0.12598	18.00	56.00	4.00	130
48172321	●	-	-	-	3.210	0.12638	18.00	56.00	4.00	130
48172322	●	-	-	-	3.220	0.12677	18.00	56.00	4.00	130
48172323	●	-	-	-	3.230	0.12717	18.00	56.00	4.00	130
48172324	●	-	-	-	3.240	0.12756	18.00	56.00	4.00	130
3300325	●	-	-	-	3.250	0.12795	18.00	56.00	4.00	130
48172326	●	-	-	-	3.260	0.12835	18.00	56.00	4.00	130
48172327	●	-	-	-	3.270	0.12874	18.00	56.00	4.00	130
48172328	●	-	-	-	3.280	0.12913	18.00	56.00	4.00	130
48172329	●	-	-	-	3.290	0.12953	18.00	56.00	4.00	130
3300330	●	-	-	-	3.300	0.12992	18.00	56.00	4.00	130
48172331	●	-	-	-	3.310	0.13031	18.00	56.00	4.00	130
48172332	●	-	-	-	3.320	0.13071	18.00	56.00	4.00	130
48172333	●	-	-	-	3.330	0.13110	18.00	56.00	4.00	130
48172334	●	-	-	-	3.340	0.13150	18.00	56.00	4.00	130

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



CONTINUED

Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○					

○ good ⊙ best



# HOLEMAKING

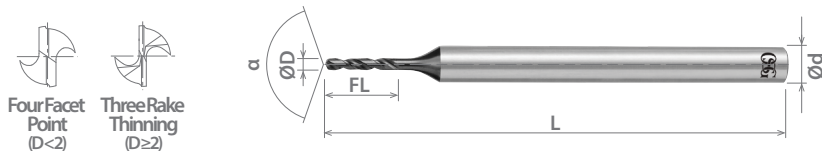
EXOCARB® MAX MINI - High Performance Micro Carbide Drills

## WX-MS-GDS (Continued)

LIST 5330, EXOCARB® WX-MS-GDS, Precision Drill

CARBIDE	TiAIN	2 FLUTE	JOBBER	30°	SHANK h6	PACKED 1 PIECE
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Cutting Diameter Tolerance		
Size (mm)	mm	inch
0.2 ≤ D ≤ 5	+0 / -0.010	+0 / -0.0004



EDP Number		Diameter (D)					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
3300335	●	-	-	-	3.350	0.13189	18.00	56.00	4.00	130
48172336	●	-	-	-	3.360	0.13228	20.00	56.00	4.00	130
48172337	●	-	-	-	3.370	0.13268	20.00	56.00	4.00	130
48172338	●	-	-	-	3.380	0.13307	20.00	56.00	4.00	130
48172339	●	-	-	-	3.390	0.13346	20.00	56.00	4.00	130
3300340	●	-	-	-	3.400	0.13386	20.00	56.00	4.00	130
48172341	●	-	-	-	3.410	0.13425	20.00	56.00	4.00	130
48172342	●	-	-	-	3.420	0.13465	20.00	56.00	4.00	130
48172343	●	-	-	-	3.430	0.13504	20.00	56.00	4.00	130
48172344	●	-	-	-	3.440	0.13543	20.00	56.00	4.00	130
3300345	●	-	-	-	3.450	0.13583	20.00	56.00	4.00	130
48172346	●	-	-	-	3.460	0.13622	20.00	56.00	4.00	130
48172347	●	-	-	-	3.470	0.13661	20.00	56.00	4.00	130
48172348	●	-	-	-	3.480	0.13701	20.00	56.00	4.00	130
48172349	●	-	-	-	3.490	0.13740	20.00	56.00	4.00	130
3300350	●	-	-	-	3.500	0.13780	20.00	56.00	4.00	130
48172351	●	-	-	-	3.510	0.13819	20.00	56.00	4.00	130
48172352	●	-	-	-	3.520	0.13858	20.00	56.00	4.00	130
48172353	●	-	-	-	3.530	0.13898	20.00	56.00	4.00	130
48172354	●	-	-	-	3.540	0.13937	20.00	56.00	4.00	130
3300355	●	-	-	-	3.550	0.13976	20.00	56.00	4.00	130
48172356	●	-	-	-	3.560	0.14016	20.00	56.00	4.00	130
48172357	●	-	-	-	3.570	0.14055	20.00	56.00	4.00	130
48172358	●	-	-	-	3.580	0.14094	20.00	56.00	4.00	130
48172359	●	-	-	-	3.590	0.14134	20.00	56.00	4.00	130
3300360	●	-	-	-	3.600	0.14173	20.00	56.00	4.00	130
48172361	●	-	-	-	3.610	0.14213	20.00	56.00	4.00	130
48172362	●	-	-	-	3.620	0.14252	20.00	56.00	4.00	130
48172363	●	-	-	-	3.630	0.14291	20.00	56.00	4.00	130
48172364	●	-	-	-	3.640	0.14331	20.00	56.00	4.00	130
3300365	●	-	-	-	3.650	0.14370	20.00	56.00	4.00	130
48172366	●	-	-	-	3.660	0.14409	20.00	56.00	4.00	130
48172367	●	-	-	-	3.670	0.14449	20.00	56.00	4.00	130
48172368	●	-	-	-	3.680	0.14488	20.00	56.00	4.00	130
48172369	●	-	-	-	3.690	0.14528	20.00	56.00	4.00	130
3300370	●	-	-	-	3.700	0.14567	20.00	56.00	4.00	130
48172371	●	-	-	-	3.710	0.14606	20.00	56.00	4.00	130
48172372	●	-	-	-	3.720	0.14646	20.00	56.00	4.00	130
48172373	●	-	-	-	3.730	0.14685	20.00	56.00	4.00	130
48172374	●	-	-	-	3.740	0.14724	20.00	56.00	4.00	130
3300375	●	-	-	-	3.750	0.14764	20.00	56.00	4.00	130
48172376	●	-	-	-	3.760	0.14803	22.00	56.00	4.00	130
48172377	●	-	-	-	3.770	0.14843	22.00	56.00	4.00	130
48172378	●	-	-	-	3.780	0.14882	22.00	56.00	4.00	130
48172379	●	-	-	-	3.790	0.14921	22.00	56.00	4.00	130
3300380	●	-	-	-	3.800	0.14961	22.00	56.00	4.00	130
48172381	●	-	-	-	3.810	0.15000	22.00	56.00	4.00	130
48172382	●	-	-	-	3.820	0.15039	22.00	56.00	4.00	130
48172383	●	-	-	-	3.830	0.15079	22.00	56.00	4.00	130
48172384	●	-	-	-	3.840	0.15118	22.00	56.00	4.00	130
3300385	●	-	-	-	3.850	0.15157	22.00	56.00	4.00	130
48172386	●	-	-	-	3.860	0.15197	22.00	56.00	4.00	130
48172387	●	-	-	-	3.870	0.15236	22.00	56.00	4.00	130
48172388	●	-	-	-	3.880	0.15276	22.00	56.00	4.00	130
48172389	●	-	-	-	3.890	0.15315	22.00	56.00	4.00	130

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked





## WX-MS-GDS (Continued)

LIST 5330, EXOCARB® WX-MS-GDS, Precision Drill

CARBIDE	TiAlN	2 FLUTE	JOBBER	30°	SHANK h6	PACKED 1 PIECE
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EDP Number		Diameter (D)					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
3300390	●	-	-	-	3.900	0.15354	22.00	56.00	4.00	130
48172391	●	-	-	-	3.910	0.15394	22.00	56.00	4.00	130
48172392	●	-	-	-	3.920	0.15433	22.00	56.00	4.00	130
48172393	●	-	-	-	3.930	0.15472	22.00	56.00	4.00	130
48172394	●	-	-	-	3.940	0.15512	22.00	56.00	4.00	130
3300395	●	-	-	-	3.950	0.15551	22.00	56.00	4.00	130
48172396	●	-	-	-	3.960	0.15591	22.00	56.00	4.00	130
48172397	●	-	-	-	3.970	0.15630	22.00	56.00	4.00	130
48172398	●	-	-	-	3.980	0.15669	22.00	56.00	4.00	130
48172399	●	-	-	-	3.990	0.15709	22.00	56.00	4.00	130
3300400	●	-	-	-	4.000	0.15748	22.00	56.00	4.00	130
3300405	●	-	-	-	4.050	0.15945	22.00	64.00	5.00	130
3300410	●	-	-	-	4.100	0.16142	22.00	64.00	5.00	130
3300415	●	-	-	-	4.150	0.16339	22.00	64.00	5.00	130
3300420	●	-	-	-	4.200	0.16535	22.00	64.00	5.00	130
3300425	●	-	-	-	4.250	0.16732	22.00	64.00	5.00	130
3300430	●	-	-	-	4.300	0.16929	24.00	64.00	5.00	130
3300435	●	-	-	-	4.350	0.17126	24.00	64.00	5.00	130
3300440	●	-	-	-	4.400	0.17323	24.00	64.00	5.00	130
3300445	●	-	-	-	4.450	0.17520	24.00	64.00	5.00	130
3300450	●	-	-	-	4.500	0.17717	24.00	64.00	5.00	130
3300455	●	-	-	-	4.550	0.17913	24.00	64.00	5.00	130
3300460	●	-	-	-	4.600	0.18110	24.00	64.00	5.00	130
3300465	●	-	-	-	4.650	0.18307	24.00	64.00	5.00	130
3300470	●	-	-	-	4.700	0.18504	24.00	64.00	5.00	130
3300475	●	-	-	-	4.750	0.18701	24.00	64.00	5.00	130
3300480	●	-	-	-	4.800	0.18898	26.00	64.00	5.00	130
3300485	●	-	-	-	4.850	0.19094	26.00	64.00	5.00	130
3300490	●	-	-	-	4.900	0.19291	26.00	64.00	5.00	130
3300495	●	-	-	-	4.950	0.19488	26.00	64.00	5.00	130
3300500	●	-	-	-	5.000	0.19685	26.00	64.00	5.00	130

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○					

○ good ⊙ best



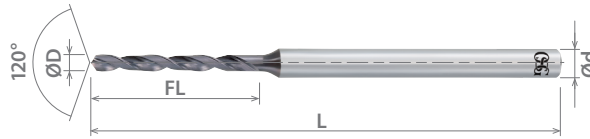
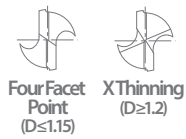
# HOLEMAKING

EXOCARB® MAX MINI - High Performance Micro Carbide Drills

## MRS-GDL

List 5340, EXOCARB® MAX-MINI MRS-GDL, Precision Drill

CARBIDE	SS	2 FLUTE	TAPER	30°	SHANK h6	PACKED 1 PIECE
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Cutting Diameter Tolerance		
Size (mm)	mm	inch
0.5 ≤ D ≤ 3	+0 / -0.008	+0 / -0.0003

EDP Number		Diameter (D)					Flute Length	Overall Length	Shank Diameter
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
8577050	●	-	-	-	0.500	0.01969	6.00	42.00	3.00
8577054	●	-	-	-	0.540	0.02126	6.60	42.00	3.00
8577055	●	-	-	-	0.550	0.02165	6.60	42.00	3.00
8577056	●	-	-	-	0.560	0.02205	7.20	42.00	3.00
8577060	●	-	-	-	0.600	0.02362	7.20	42.00	3.00
8577063	●	-	-	-	0.630	0.02480	7.80	46.00	3.00
8577064	●	-	-	-	0.640	0.02520	7.80	46.00	3.00
8577065	●	-	-	-	0.650	0.02559	7.80	46.00	3.00
8577070	●	-	-	-	0.700	0.02756	8.40	46.00	3.00
8577071	●	-	-	-	0.710	0.02795	9.00	46.00	3.00
8577072	●	-	-	-	0.720	0.02835	9.00	46.00	3.00
8577073	●	-	-	-	0.730	0.02874	9.00	46.00	3.00
8577074	●	-	-	-	0.740	0.02913	9.00	46.00	3.00
8577075	●	-	-	-	0.750	0.02953	9.00	46.00	3.00
8577080	●	-	-	-	0.800	0.03150	9.60	46.00	3.00
8577081	●	-	-	-	0.810	0.03189	10.20	46.00	3.00
8577082	●	-	-	-	0.820	0.03228	10.20	46.00	3.00
8577090	●	-	-	-	0.900	0.03543	10.80	46.00	3.00
8577091	●	-	-	-	0.910	0.03583	11.40	46.00	3.00
8577092	●	-	-	-	0.920	0.03622	11.40	46.00	3.00
8577100	●	-	-	-	1.000	0.03937	12.00	46.00	3.00
8577110	●	-	-	-	1.100	0.04331	13.20	50.00	3.00
8577111	●	-	-	-	1.110	0.04370	13.80	50.00	3.00
8577112	●	-	-	-	1.120	0.04409	13.80	50.00	3.00
8577115	●	-	-	-	1.150	0.04528	13.80	50.00	3.00
8577120	●	-	-	-	1.200	0.04724	14.40	50.00	3.00
8577127	●	-	-	-	1.270	0.05000	15.60	50.00	3.00
8577128	●	-	-	-	1.280	0.05039	15.60	50.00	3.00
8577129	●	-	-	-	1.290	0.05079	15.60	50.00	3.00
8577130	●	-	-	-	1.300	0.05118	15.60	50.00	3.00
8577140	●	-	-	-	1.400	0.05512	16.80	54.00	3.00
8577145	●	-	-	-	1.450	0.05709	17.40	54.00	3.00
8577146	●	-	-	-	1.460	0.05748	18.00	54.00	3.00
8577147	●	-	-	-	1.470	0.05787	18.00	54.00	3.00
8577150	●	-	-	-	1.500	0.05906	18.00	54.00	3.00
8577151	●	-	-	-	1.510	0.05945	18.60	54.00	3.00
8577152	●	-	-	-	1.520	0.05984	18.60	54.00	3.00
8577153	●	-	-	-	1.530	0.06024	18.60	54.00	3.00
8577155	●	-	-	-	1.550	0.06102	18.60	54.00	3.00
8577156	●	-	-	-	1.560	0.06142	19.20	54.00	3.00
8577157	●	-	-	-	1.570	0.06181	19.20	54.00	3.00
8577160	●	-	-	-	1.600	0.06299	19.20	54.00	3.00
8577170	●	-	-	-	1.700	0.06693	20.40	58.00	3.00
8577180	●	-	-	-	1.800	0.07087	21.60	58.00	3.00
8577181	●	-	-	-	1.810	0.07126	22.20	58.00	3.00
8577182	●	-	-	-	1.820	0.07165	22.20	58.00	3.00
8577183	●	-	-	-	1.830	0.07205	22.20	58.00	3.00
8577190	●	-	-	-	1.900	0.07480	22.80	58.00	3.00
8577198	●	-	-	-	1.980	0.07795	24.00	58.00	3.00
8577199	●	-	-	-	1.990	0.07835	24.00	58.00	3.00
8577200	●	-	-	-	2.000	0.07874	24.00	58.00	3.00
8577210	●	-	-	-	2.100	0.08268	25.20	62.00	3.00
8577212	●	-	-	-	2.120	0.08346	25.80	62.00	3.00
8577213	●	-	-	-	2.130	0.08386	25.80	62.00	3.00

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



## MRS-GDL (Continued)

List 5340, EXOCARB® MAX-MINI MRS-GDL, Precision Drill

CARBIDE	SS	2 FLUTE	TAPER	30°	SHANK h6	PACKED 1 PIECE
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EDP Number		Diameter (D)					Flute Length	Overall Length	Shank Diameter
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
8577214	●	-	-	-	2.140	0.08425	25.80	62.00	3.00
8577220	●	-	-	-	2.200	0.08661	26.40	62.00	3.00
8577229	●	-	-	-	2.290	0.09016	27.60	62.00	3.00
8577230	●	-	-	-	2.300	0.09055	27.60	62.00	3.00
8577231	●	-	-	-	2.310	0.09094	28.20	62.00	3.00
8577239	●	-	-	-	2.390	0.09409	28.80	62.00	3.00
8577240	●	-	-	-	2.400	0.09449	28.80	62.00	3.00
8577241	●	-	-	-	2.410	0.09488	29.40	66.00	3.00
8577242	●	-	-	-	2.420	0.09528	29.40	66.00	3.00
8577250	●	-	-	-	2.500	0.09843	30.00	66.00	3.00
8577255	●	-	-	-	2.550	0.10039	30.60	66.00	3.00
8577256	●	-	-	-	2.560	0.10079	31.20	66.00	3.00
8577257	●	-	-	-	2.570	0.10118	31.20	66.00	3.00
8577260	●	-	-	-	2.600	0.10236	31.20	66.00	3.00
8577270	●	-	-	-	2.700	0.10630	32.40	66.00	3.00
8577277	●	-	-	-	2.770	0.10906	33.60	66.00	3.00
8577278	●	-	-	-	2.780	0.10945	33.60	66.00	3.00
8577279	●	-	-	-	2.790	0.10984	33.60	66.00	3.00
8577280	●	-	-	-	2.800	0.11024	33.60	66.00	3.00
8577290	●	-	-	-	2.900	0.11417	34.80	66.00	3.00
8577300	●	-	-	-	3.000	0.11811	36.00	66.00	3.00

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○					

○ good ⊙ best



# HOLEMAKING

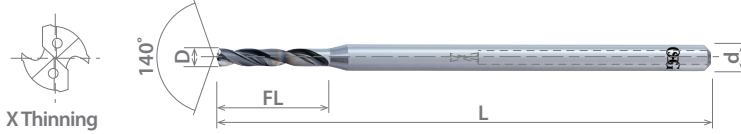
A Brand ADO-MICRO - Advanced Performance Carbide Micro Drills

## ADO-MICRO-2D

List 6501, A BRAND ADO-MICRO-2D



CARBIDE	IchAda	2 FLUTE	STUB	30°	SHANK h6	PACKED 1 PIECE
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Cutting Diameter Tolerance		
Size (mm)	mm	inch
0.7 ≤ D ≤ 2	+0.00004 / +0.0004	+0.001 / +0.010

EDP Number	Fractional Size	Wire Gage	Diameter (D)			Flute Length FL (mm)	Overall Length L (mm)	Shank Diameter d (mm)
			Letter Size	mm	Inch			
8732001	-	-	-	0.700	0.02756	4.20	47.00	3.00
8732002	-	-	-	0.750	0.02953	4.50	47.00	3.00
8732003	-	-	-	0.800	0.03150	4.80	50.00	3.00
8732004	-	-	-	0.850	0.03346	5.10	50.00	3.00
8732005	-	-	-	0.900	0.03543	5.40	50.00	3.00
8732006	-	-	-	0.950	0.03740	5.70	50.00	3.00
8732007	-	-	-	1.000	0.03937	6.00	53.00	3.00
8732008	-	-	-	1.100	0.04331	6.60	53.00	3.00
8732009	-	-	-	1.200	0.04724	7.20	53.00	3.00
8732010	-	-	-	1.300	0.05118	7.80	53.00	3.00
8732011	-	-	-	1.400	0.05512	8.40	53.00	3.00
8732012	-	-	-	1.500	0.05906	9.00	53.00	3.00
8732013	-	-	-	1.600	0.06299	9.60	53.00	3.00
8732014	-	-	-	1.700	0.06693	10.20	53.00	3.00
8732015	-	-	-	1.800	0.07087	10.80	53.00	3.00
8732016	-	-	-	1.900	0.07480	11.40	53.00	3.00
8732017	-	-	-	2.000	0.07874	12.00	58.00	3.00

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked  
 Note: Can be used as Pilot Drill for long type drills (ADO-MICRO 12D, 20D, and 30D).



P Steel					M Stainless Steel			K Cast Iron	N Non-Ferrous		S HRSA		H Hardened Steel			
Carbon Steel			Alloy Steel	Die Steel					Aluminum		Nickel Alloy	Titanium				
Low	Medium	High							6061	Casting						
1010	1035	1065	4140	4340	300	400	17-4 PH		6061	7075	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

○ Good ○ Best

Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○					

○ good ○ best

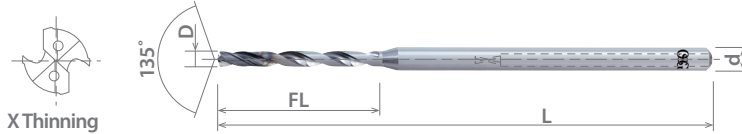


## ADO-MICRO-5D

List 6502, A BRAND ADO-MICRO-5D



CARBIDE	IchAda	2 FLUTE	JOBBER	30°	SHANK h6	PACKED 1 PIECE
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Cutting Diameter Tolerance		
Size (mm)	mm	inch
0.7 ≤ D ≤ 2	+0 / -0.009	+0 / -0.0004

EDP Number		Diameter (D)					Flute Length FL (mm)	Overall Length L (mm)	Shank Diameter d (mm)
		Fractional Size	Wire Gage	Letter Size	mm	Inch			
8732018	●	-	-	-	0.700	0.02756	7.00	47.00	3.00
8732019	●	-	-	-	0.750	0.02953	7.50	47.00	3.00
8732020	●	-	-	-	0.800	0.03150	8.00	50.00	3.00
8732021	●	-	-	-	0.850	0.03346	8.50	50.00	3.00
8732022	●	-	-	-	0.900	0.03543	9.00	50.00	3.00
8732023	●	-	-	-	0.950	0.03740	9.50	50.00	3.00
8732024	●	-	-	-	1.000	0.03937	10.00	55.00	3.00
8732025	●	-	-	-	1.100	0.04331	11.00	55.00	3.00
8732026	●	-	-	-	1.200	0.04724	12.00	60.00	3.00
8732027	●	-	-	-	1.300	0.05118	13.00	60.00	3.00
8732028	●	-	-	-	1.400	0.05512	14.00	60.00	3.00
8732029	●	-	-	-	1.500	0.05906	15.00	60.00	3.00
8732030	●	-	-	-	1.600	0.06299	16.00	60.00	3.00
8732031	●	-	-	-	1.700	0.06693	17.00	60.00	3.00
8732032	●	-	-	-	1.800	0.07087	18.00	65.00	3.00
8732033	●	-	-	-	1.900	0.07480	19.00	65.00	3.00
8732034	●	-	-	-	2.000	0.07874	20.00	65.00	3.00

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



P					M			K	N		S		H					
Steel					Stainless Steel			Cast Iron	Non-Ferrous		HRSA		Hardened Steel					
Carbon Steel			Alloy Steel	Die Steel					Aluminum		Nickel Alloy	Titanium						
Low	Medium	High			300	400	17-4 PH		6061 7075	Casting			Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1010	1035	1065	4140	4340	○	○	○	○	○	○	○	○	○	○	○	○	○	○
1018	1045				○	○	○	○	○	○	○	○	○	○	○	○	○	○

○ Good ○ Best

Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○					

○ good ○ best



# HOLEMAKING

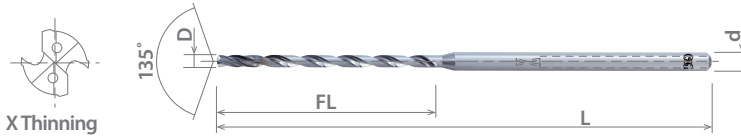
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## ADO-MICRO-12D

List 6503, A BRAND ADO-MICRO-12D



CARBIDE	IchAda	2 FLUTE	TAPER	30°	SHANK h6	PACKED 1 PIECE
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Size (mm)	Cutting Diameter Tolerance	
	mm	inch
1 ≤ D ≤ 2	+0 / -0.009	+0 / -0.0004

EDP Number	Diameter (D)	Flute Length	Overall Length	Shank Diameter					
					Fractional Size	Wire Gage	Letter Size	mm	Inch
8732035	●	-	-	-	1.000	0.03937	17.00	60.00	3.00
8732036	●	-	-	-	1.100	0.04331	18.70	65.00	3.00
8732037	●	-	-	-	1.200	0.04724	20.40	65.00	3.00
8732038	●	-	-	-	1.300	0.05118	22.10	65.00	3.00
8732039	●	-	-	-	1.400	0.05512	23.80	70.00	3.00
8732040	●	-	-	-	1.500	0.05906	25.50	70.00	3.00
8732041	●	-	-	-	1.600	0.06299	27.20	70.00	3.00
8732042	●	-	-	-	1.700	0.06693	28.90	73.00	3.00
8732043	●	-	-	-	1.800	0.07087	30.60	73.00	3.00
8732044	●	-	-	-	1.900	0.07480	32.30	73.00	3.00
8732045	●	-	-	-	2.000	0.07874	34.00	77.00	3.00

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked  
 Note: ADO-MICRO 2D is the recommended pilot hole drill.



P Steel					M Stainless Steel			K Cast Iron	N Non-Ferrous		S HRSA		H Hardened Steel			
Carbon Steel			Alloy Steel	Die Steel					Aluminum		Nickel Alloy	Titanium				
Low	Medium	High							6061	Casting						
1010	1035	1065	4140	Die Steel	300	400	17-4 PH	Cast Iron	6061	Casting	Inconel	6A14V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1018	1045		4340							7075						
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

○ Good ○ Best

Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○					

○ good ○ best

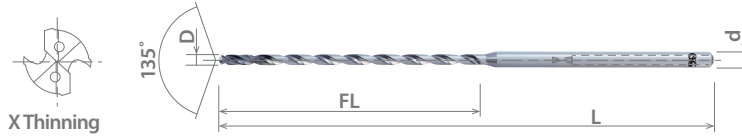


## ADO-MICRO-20D

List 6504, A BRAND ADO-MICRO-20D



CARBIDE	IchAda	2 FLUTE	TAPER	30°	SHANK h6	PACKED 1 PIECE
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Cutting Diameter Tolerance		
Size (mm)	mm	inch
1 ≤ D ≤ 2	+0 / -0.009	+0 / -0.0004

EDP Number		Diameter (D)					Flute Length	Overall Length	Shank Diameter
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
8732046	●	-	-	-	1.000	0.03937	24.00	68.00	3.00
8732047	●	-	-	-	1.100	0.04331	26.40	75.00	3.00
8732048	●	-	-	-	1.200	0.04724	28.80	75.00	3.00
8732049	●	-	-	-	1.300	0.05118	31.20	75.00	3.00
8732050	●	-	-	-	1.400	0.05512	33.60	81.00	3.00
8732051	●	-	-	-	1.500	0.05906	36.00	81.00	3.00
8732052	●	-	-	-	1.600	0.06299	38.40	81.00	3.00
8732053	●	-	-	-	1.700	0.06693	40.80	88.00	3.00
8732054	●	-	-	-	1.800	0.07087	43.20	88.00	3.00
8732055	●	-	-	-	1.900	0.07480	45.60	88.00	3.00
8732056	●	-	-	-	2.000	0.07874	48.00	95.00	3.00

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked  
 Note: ADO-MICRO 2D is the recommended pilot hole drill.



P				M			K	N		S		H						
Steel				Stainless Steel			Cast Iron	Non-Ferrous		HRSA		Hardened Steel						
Carbon Steel			Alloy Steel					Die Steel	Aluminum		Nickel Alloy					Titanium		
Low	Medium	High		300	400	17-4 PH	6061 7075		Casting	Inconel		6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC		50-70 HRC	
1010	1035	1065	4140															
1018	1045		4340															

○ Good ● Best

Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○					

○ good ● best



# HOLEMAKING

A Brand ADO-MICRO - Advanced Performance Carbide Micro Drills

## ADO-MICRO-30D

List 6505, A BRAND ADO-MICRO-30D



CARBIDE IchAda 2 FLUTE TAPER 30° SHANK h6 PACKED 1 PIECE



Cutting Diameter Tolerance		
Size (mm)	mm	inch
1 ≤ D ≤ 2	+0 / -0.009	+0 / -0.0004

EDP Number	●	Diameter (D)					Flute Length	Overall Length	Shank Diameter
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
8732057	●	-	-	-	1.000	0.03937	34.00	77.00	3.00
8732058	●	-	-	-	1.100	0.04331	37.40	86.00	3.00
8732059	●	-	-	-	1.200	0.04724	40.80	86.00	3.00
8732060	●	-	-	-	1.300	0.05118	44.20	86.00	3.00
8732061	●	-	-	-	1.400	0.05512	47.60	95.00	3.00
8732062	●	-	-	-	1.500	0.05906	51.00	95.00	3.00
8732063	●	-	-	-	1.600	0.06299	54.40	101.00	3.00
8732064	●	-	-	-	1.700	0.06693	57.80	101.00	3.00
8732065	●	-	-	-	1.800	0.07087	61.20	107.00	3.00
8732066	●	-	-	-	1.900	0.07480	64.60	107.00	3.00
8732067	●	-	-	-	2.000	0.07874	68.00	112.00	3.00

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked  
 Note: ADO-MICRO 2D is the recommended pilot hole drill.



P Steel					M Stainless Steel			K Cast Iron	N Non-Ferrous		S HRSA		H Hardened Steel			
Carbon Steel			Alloy Steel	Die Steel				Aluminum		Nickel Alloy	Titanium					
Low	Medium	High														
1010	1035	1065	4140	Steel	300	400	17-4 PH	6061	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
1018	1045		4340					7075								
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

○ Good ○ Best

Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○					

○ good ○ best

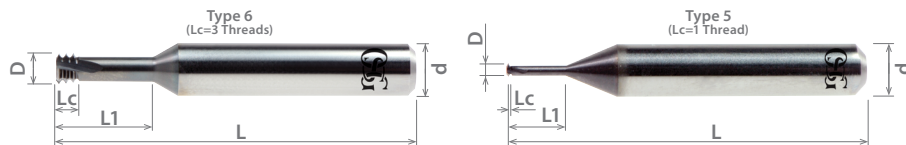




## WH-VM-PNC

List 41300, EXOCARB® WH-VM-PNC, Miniature

THREAD MILL	CARBIDE	SS	WXS	3 FLUTE	11°	SHANK h6	PACKED 1 PIECE
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EDP Number	Thread Size	Diameter		Overall Length	Length of Cut	Neck Length	Shank Diameter	Type	Surface Treatment
		D (mm)	L (mm)	Lc (mm)	L1 (mm)	d (mm)			
3900495	● M1 x 0.25	0.72	40.00	0.26	2.75	3.00	5	Super Smooth	
3900496	● M1.2 x 0.25	0.91	40.00	0.26	3.25	3.00	5	Super Smooth	
3900497	● M1.4 x 0.3	1.05	40.00	0.31	3.80	3.00	5	Super Smooth	
3900498	● M1.6 x 0.35	1.20	40.00	0.36	4.35	3.00	5	Super Smooth	
3900499	● M1.7 x 0.35	1.30	40.00	0.36	4.85	3.00	5	Super Smooth	
3900500	● M2 x 0.4	1.50	40.00	1.20	4.40	6.00	6	WXS	
3900501	● M2.5 x 0.45	1.90	41.00	1.35	5.60	6.00	6	WXS	
3900502	● M3 x 0.5	2.40	41.00	1.50	6.50	6.00	6	WXS	
3900503	● M4 x 0.7	3.10	41.00	2.10	8.70	6.00	6	WXS	
3900504	● M5 x 0.8	4.00	41.00	2.40	10.80	6.00	6	WXS	

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked

Note: For internal threads only.



For more information on thread mill applications, including ThreadPro software, visit: [osgtool.com/ThreadPro](http://osgtool.com/ThreadPro).



Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○					

○ good ⊙ best

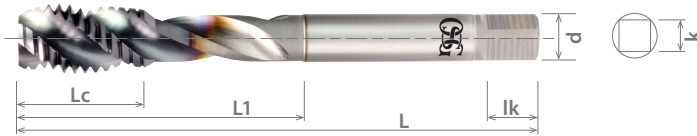


# THREADING

A Brand A-SFT - Advanced Performance Taps for a Variety of Materials

## A-SFT

List 16500, A BRAND A-SFT, DIN Overall Length



EDP Number	Thread Size	Thread Limit	Chamfer Type	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Number of Flutes
				L (mm)	Lc (mm)	L1 (mm)	d (mm)	k (mm)	lk (mm)	
1650003008	M1.4 x 0.3	D2	Modified Bottom (2.5P)	40.00	6.00	11.50	3.58	2.79	4.76	2
1650003108	M1.6 x 0.35	D3	Modified Bottom (2.5P)	40.00	7.00	13.60	3.58	2.79	4.76	2
1650003208	M1.7 x 0.35	D3	Modified Bottom (2.5P)	40.00	8.00	13.40	3.58	2.79	4.76	2
1650003308	M2 x 0.25	D2	Modified Bottom (2.5P)	45.00	3.30	10.00	3.58	2.79	4.76	2
1650003408	M2 x 0.4	D3	Modified Bottom (2.5P)	45.00	3.30	10.00	3.58	2.79	4.76	2
1650003508	M2.2 x 0.25	D2	Modified Bottom (2.5P)	45.00	3.30	11.00	3.58	2.79	4.76	2
1650003608	M2.2 x 0.45	D3	Modified Bottom (2.5P)	45.00	3.30	11.00	3.58	2.79	4.76	2
1650003708	M2.3 x 0.4	D3	Modified Bottom (2.5P)	45.00	3.20	11.90	3.58	2.79	4.76	2
1650003808	M2.5 x 0.35	D3	Modified Bottom (2.5P)	50.00	3.70	13.00	3.58	2.79	4.76	2
1650003908	M2.5 x 0.45	D3	Modified Bottom (2.5P)	50.00	3.70	13.00	3.58	2.79	4.76	2
1650004008	M2.6 x 0.45	D3	Modified Bottom (2.5P)	50.00	3.70	13.00	3.58	2.79	4.76	2
1650009708	M3 x 0.35	D2	Bottom (1.5P)	56.00	4.00	18.00	3.58	2.79	4.76	3
1650004108	M3 x 0.35	D3	Modified Bottom (2.5P)	56.00	4.00	18.00	3.58	2.79	4.76	3
1650009808	M3 x 0.5	D3	Bottom (1.5P)	56.00	4.00	18.00	3.58	2.79	4.76	3
1650000108	M3 x 0.5	D3	Modified Bottom (2.5P)	56.00	4.00	18.00	3.58	2.79	4.76	3
1650009908	M3.5 x 0.35	D3	Bottom (1.5P)	56.00	4.80	20.00	3.58	2.79	4.76	3
1650004208	M3.5 x 0.35	D3	Modified Bottom (2.5P)	56.00	4.80	20.00	3.58	2.79	4.76	3
1650010008	M3.5 x 0.6	D3	Bottom (1.5P)	56.00	4.80	20.00	3.58	2.79	4.76	3
1650004308	M3.5 x 0.6	D3	Modified Bottom (2.5P)	56.00	4.80	20.00	3.58	2.79	4.76	3
1650010108	M4 x 0.5	D3	Bottom (1.5P)	63.00	5.60	20.90	4.27	3.33	6.35	3
1650000208	M4 x 0.5	D3	Modified Bottom (2.5P)	63.00	5.60	20.90	4.27	3.33	6.35	3
1650010208	M4 x 0.7	D4	Bottom (1.5P)	63.00	5.60	20.90	4.27	3.33	6.35	3
1650000308	M4 x 0.7	D4	Modified Bottom (2.5P)	63.00	5.60	20.90	4.27	3.33	6.35	3
1650010308	M4.5 x 0.5	D3	Bottom (1.5P)	70.00	6.10	24.90	4.93	3.86	6.35	3
1650004408	M4.5 x 0.5	D3	Modified Bottom (2.5P)	70.00	6.10	24.90	4.93	3.86	6.35	3
1650010408	M4.5 x 0.75	D4	Bottom (1.5P)	70.00	6.10	24.90	4.93	3.86	6.35	3
1650004508	M4.5 x 0.75	D4	Modified Bottom (2.5P)	70.00	6.10	24.90	4.93	3.86	6.35	3
1650010508	M5 x 0.5	D3	Bottom (1.5P)	70.00	6.40	25.10	4.93	3.86	6.35	3
1650000408	M5 x 0.5	D3	Modified Bottom (2.5P)	70.00	6.40	25.10	4.93	3.86	6.35	3
1650010608	M5 x 0.8	D4	Bottom (1.5P)	70.00	6.40	25.10	4.93	3.86	6.35	3
1650000508	M5 x 0.8	D4	Modified Bottom (2.5P)	70.00	6.40	25.10	4.93	3.86	6.35	3
1650010708	M5.5 x 0.5	D3	Bottom (1.5P)	80.00	7.30	30.10	5.59	4.19	7.14	3
1650004608	M5.5 x 0.5	D3	Modified Bottom (2.5P)	80.00	7.30	30.10	5.59	4.19	7.14	3
1650010808	M6 x 0.5	D3	Bottom (1.5P)	80.00	8.00	29.90	6.48	4.85	7.94	3
1650000608	M6 x 0.5	D3	Modified Bottom (2.5P)	80.00	8.00	29.90	6.48	4.85	7.94	3
1650010908	M6 x 0.75	D4	Bottom (1.5P)	80.00	8.00	29.90	6.48	4.85	7.94	3
1650000708	M6 x 0.75	D4	Modified Bottom (2.5P)	80.00	8.00	29.90	6.48	4.85	7.94	3
1650011008	M6 x 1	D5	Bottom (1.5P)	80.00	8.00	29.90	6.48	4.85	7.94	3
1650000808	M6 x 1	D5	Modified Bottom (2.5P)	80.00	8.00	29.90	6.48	4.85	7.94	3
1650011108	M7 x 0.75	D4	Bottom (1.5P)	80.00	8.00	30.00	8.08	6.05	9.53	3
1650004708	M7 x 0.75	D4	Modified Bottom (2.5P)	80.00	8.00	30.00	8.08	6.05	9.53	3
1650011208	M7 x 1	D5	Bottom (1.5P)	80.00	8.00	30.00	8.08	6.05	9.53	3
1650004808	M7 x 1	D5	Modified Bottom (2.5P)	80.00	8.00	30.00	8.08	6.05	9.53	3
1650011308	M8 x 0.75	D4	Bottom (1.5P)	80.00	8.00	33.00	8.08	6.05	9.53	3
1650004908	M8 x 0.75	D4	Modified Bottom (2.5P)	80.00	8.00	33.00	8.08	6.05	9.53	3
1650011408	M8 x 1	D5	Bottom (1.5P)	90.00	10.00	35.00	8.08	6.05	9.53	3
1650000908	M8 x 1	D5	Modified Bottom (2.5P)	90.00	10.00	35.00	8.08	6.05	9.53	3
1650011508	M8 x 1.25	D5	Bottom (1.5P)	90.00	10.00	35.00	8.08	6.05	9.53	3
1650001008	M8 x 1.25	D5	Modified Bottom (2.5P)	90.00	10.00	35.00	8.08	6.05	9.53	3
1650011608	M9 x 0.75	D4	Bottom (1.5P)	90.00	8.00	35.00	9.68	7.26	11.11	3
1650005008	M9 x 0.75	D4	Modified Bottom (2.5P)	90.00	8.00	35.00	9.68	7.26	11.11	3
1650011708	M9 x 1	D5	Bottom (1.5P)	90.00	10.00	35.00	9.68	7.26	11.11	3
1650005108	M9 x 1	D5	Modified Bottom (2.5P)	90.00	10.00	35.00	9.68	7.26	11.11	3
1650011808	M9 x 1.25	D5	Bottom (1.5P)	90.00	10.00	35.00	9.68	7.26	11.11	3
1650005208	M9 x 1.25	D5	Modified Bottom (2.5P)	90.00	10.00	35.00	9.68	7.26	11.11	3

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



## A-SFT (Continued)

List 16500, A BRAND A-SFT, DIN Overall Length



EDP Number	Thread Size	Thread Limit	Chamfer Type	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Number of Flutes	
				L (mm)	Lc (mm)	L1 (mm)	d (mm)	k (mm)	lk (mm)		
1650011908	●	M10 x 0.75	D4	Bottom (1.5P)	90.00	10.00	35.00	9.68	7.26	11.11	3
1650005308	●	M10 x 0.75	D4	Modified Bottom (2.5P)	90.00	10.00	35.00	9.68	7.26	11.11	3
1650012008	●	M10 x 1	D5	Bottom (1.5P)	90.00	10.00	35.00	9.68	7.26	11.11	3
1650001108	●	M10 x 1	D5	Modified Bottom (2.5P)	90.00	10.00	35.00	9.68	7.26	11.11	3
1650012108	●	M10 x 1.25	D5	Bottom (1.5P)	100.00	12.00	39.00	9.68	7.26	11.11	3
1650001208	●	M10 x 1.25	D5	Modified Bottom (2.5P)	100.00	12.00	39.00	9.68	7.26	11.11	3
1650012208	●	M10 x 1.5	D6	Bottom (1.5P)	100.00	12.00	39.00	9.68	7.26	11.11	3
1650001308	●	M10 x 1.5	D6	Modified Bottom (2.5P)	100.00	12.00	39.00	9.68	7.26	11.11	3
1650012308	●	M11 x 0.75	D4	Bottom (1.5P)	90.00	8.00	43.50	8.20	6.15	10.32	3
1650005408	●	M11 x 0.75	D4	Modified Bottom (2.5P)	90.00	8.00	43.50	8.20	6.15	10.32	3
1650012408	●	M11 x 1	D5	Bottom (1.5P)	90.00	12.00	43.50	8.20	6.15	10.32	3
1650005508	●	M11 x 1	D5	Modified Bottom (2.5P)	90.00	12.00	43.50	8.20	6.15	10.32	3
1650012508	●	M11 x 1.25	D5	Bottom (1.5P)	100.00	12.00	43.50	8.20	6.15	10.32	3
1650012608	●	M11 x 1.5	D6	Bottom (1.5P)	100.00	12.00	43.50	8.20	6.15	10.32	3
1650005608	●	M11 x 1.5	D6	Modified Bottom (2.5P)	100.00	12.00	43.50	8.20	6.15	10.32	3
1650012708	●	M12 x 1	D5	Bottom (1.5P)	100.00	12.00	49.10	9.32	6.99	11.11	3
1650001408	●	M12 x 1	D5	Modified Bottom (2.5P)	100.00	12.00	49.10	9.32	6.99	11.11	3
1650012808	●	M12 x 1.25	D6	Bottom (1.5P)	100.00	12.00	49.10	9.32	6.99	11.11	3
1650001508	●	M12 x 1.25	D6	Modified Bottom (2.5P)	100.00	12.00	49.10	9.32	6.99	11.11	3
1650012908	●	M12 x 1.5	D6	Bottom (1.5P)	100.00	14.00	49.10	9.32	6.99	11.11	3
1650001608	●	M12 x 1.5	D6	Modified Bottom (2.5P)	100.00	14.00	49.10	9.32	6.99	11.11	3
1650013008	●	M12 x 1.75	D6	Bottom (1.5P)	110.00	14.00	49.10	9.32	6.99	11.11	3
1650001708	●	M12 x 1.75	D6	Modified Bottom (2.5P)	110.00	14.00	49.10	9.32	6.99	11.11	3
1650005708	●	M14 x 1	D5	Modified Bottom (2.5P)	100.00	12.00	50.10	10.90	8.18	12.70	3
1650005808	●	M14 x 1.25	D6	Modified Bottom (2.5P)	100.00	12.00	50.10	10.90	8.18	12.70	3
1650001808	●	M14 x 1.5	D6	Modified Bottom (2.5P)	100.00	16.00	50.10	10.90	8.18	12.70	3
1650001908	●	M14 x 2	D7	Modified Bottom (2.5P)	110.00	16.00	50.10	10.90	8.18	12.70	3
1650005908	●	M15 x 1	D5	Modified Bottom (2.5P)	100.00	12.00	54.00	12.19	9.14	14.29	3
1650013208	●	M15 x 1.25	D6	Modified Bottom (2.5P)	100.00	12.00	54.00	12.19	9.14	14.29	3
1650006008	●	M15 x 1.5	D6	Modified Bottom (2.5P)	100.00	16.00	54.00	12.19	9.14	14.29	3
1650013108	●	M15 x 2	D7	Modified Bottom (2.5P)	110.00	16.00	54.00	12.19	9.14	14.29	3
1650006108	●	M16 x 1	D5	Modified Bottom (2.5P)	100.00	12.00	54.00	12.19	9.14	14.29	3
1650013308	●	M16 x 1.25	D6	Modified Bottom (2.5P)	100.00	12.00	54.00	12.19	9.14	14.29	3
1650002008	●	M16 x 1.5	D6	Modified Bottom (2.5P)	100.00	16.00	54.00	12.19	9.14	14.29	3
1650002108	●	M16 x 2	D7	Modified Bottom (2.5P)	110.00	16.00	54.00	12.19	9.14	14.29	3
1650006308	●	M17 x 1	D5	Modified Bottom (2.5P)	100.00	12.00	55.00	13.77	10.31	15.88	3
1650013408	●	M17 x 1.25	D6	Modified Bottom (2.5P)	100.00	12.00	55.00	13.77	10.31	15.88	3
1650006208	●	M17 x 1.5	D6	Modified Bottom (2.5P)	100.00	16.00	55.00	13.77	10.31	15.88	3
1650006408	●	M18 x 1	D5	Modified Bottom (2.5P)	100.00	16.00	55.00	13.77	10.31	15.88	4
1650013508	●	M18 x 1.25	D6	Modified Bottom (2.5P)	110.00	16.00	55.00	13.77	10.31	15.88	4
1650002208	●	M18 x 1.5	D6	Modified Bottom (2.5P)	110.00	16.00	55.00	13.77	10.31	15.88	4
1650006508	●	M18 x 2	D7	Modified Bottom (2.5P)	125.00	25.00	55.00	13.77	10.31	15.88	4
1650002308	●	M18 x 2.5	D7	Modified Bottom (2.5P)	125.00	25.00	55.00	13.77	10.31	15.88	4
1650006608	●	M20 x 1	D5	Modified Bottom (2.5P)	125.00	16.00	61.80	16.56	12.42	17.46	4
1650002408	●	M20 x 1.5	D6	Modified Bottom (2.5P)	125.00	16.00	61.80	16.56	12.42	17.46	4
1650006708	●	M20 x 2	D7	Modified Bottom (2.5P)	140.00	25.00	61.80	16.56	12.42	17.46	4
1650002508	●	M20 x 2.5	D7	Modified Bottom (2.5P)	140.00	25.00	61.80	16.56	12.42	17.46	4
1650006808	●	M22 x 1	D5	Modified Bottom (2.5P)	125.00	16.00	67.40	17.70	13.28	19.05	4
1650002608	●	M22 x 1.5	D6	Modified Bottom (2.5P)	125.00	16.00	67.40	17.70	13.28	19.05	4
1650006908	●	M22 x 2	D7	Modified Bottom (2.5P)	140.00	25.00	67.40	17.70	13.28	19.05	4

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



CONTINUED

Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○*					

\*For Pure Titanium

○ good ⊙ best

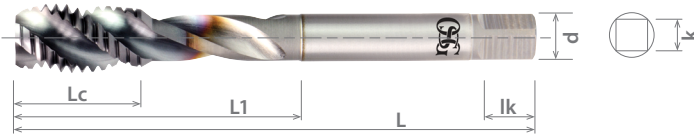


# THREADING

A Brand A-SFT - Advanced Performance Taps for a Variety of Materials

## A-SFT (Continued)

List 16500, A BRAND A-SFT, DIN Overall Length



EDP Number	Thread Size	Thread Limit	Chamfer Type	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Number of Flutes
				L (mm)	Lc (mm)	L1 (mm)	d (mm)	k (mm)	lk (mm)	
1650002708	● M22 x 2.5	D7	Modified Bottom (2.5P)	140.00	25.00	67.40	17.70	13.28	19.05	4
1650007008	● M24 x 1	D5	Modified Bottom (2.5P)	140.00	16.00	68.40	19.30	14.48	19.05	4
1650002808	● M24 x 1.5	D6	Modified Bottom (2.5P)	140.00	16.00	68.40	19.30	14.48	19.05	4
1650007108	● M24 x 2	D7	Modified Bottom (2.5P)	140.00	30.00	68.40	19.30	14.48	19.05	4
1650002908	● M24 x 3	D8	Modified Bottom (2.5P)	160.00	30.00	68.40	19.30	14.48	19.05	4
1650007208	● M27 x 1.5	D8	Modified Bottom (2.5P)	140.00	24.00	60.00	22.76	17.07	22.23	4
1650007308	● M27 x 2	D8	Modified Bottom (2.5P)	140.00	24.00	60.00	22.76	17.07	22.23	4
1650007408	● M27 x 3	D10	Modified Bottom (2.5P)	160.00	36.00	80.00	22.76	17.07	22.23	4
1650007508	● M30 x 1.5	D8	Modified Bottom (2.5P)	150.00	36.00	70.00	25.93	19.46	25.40	4
1650007608	● M30 x 2	D9	Modified Bottom (2.5P)	150.00	36.00	70.00	25.93	19.46	25.40	4
1650007708	● M30 x 3.5	D11	Modified Bottom (2.5P)	180.00	42.00	100.00	25.93	19.46	25.40	4
1650007808	● M33 x 1.5	D8	Modified Bottom (2.5P)	160.00	36.00	75.00	28.14	21.11	26.99	4
1650007908	● M33 x 2	D9	Modified Bottom (2.5P)	160.00	36.00	75.00	28.14	21.11	26.99	4
1650008008	● M33 x 3.5	D11	Modified Bottom (2.5P)	180.00	42.00	95.00	28.14	21.11	26.99	4
1650008108	● M36 x 1.5	D8	Modified Bottom (2.5P)	170.00	36.00	85.00	31.32	23.50	28.58	4
1650008208	● M36 x 2	D9	Modified Bottom (2.5P)	170.00	36.00	85.00	31.32	23.50	28.58	4
1650008308	● M36 x 3	D10	Modified Bottom (2.5P)	200.00	36.00	115.00	31.32	23.50	28.58	4
1650008408	● M36 x 4	D11	Modified Bottom (2.5P)	200.00	48.00	115.00	31.32	23.50	28.58	4
1650008508	● M39 x 4	D11	Modified Bottom (2.5P)	200.00	48.00	110.00	33.15	24.87	28.58	4
1650008608	● M42 x 1.5	D8	Modified Bottom (2.5P)	170.00	48.00	70.00	36.32	27.23	31.75	4
1650008708	● M42 x 2	D9	Modified Bottom (2.5P)	170.00	48.00	70.00	36.32	27.23	31.75	4
1650008808	● M42 x 3	D10	Modified Bottom (2.5P)	200.00	48.00	100.00	36.32	27.23	31.75	4
1650008908	● M42 x 4.5	D12	Modified Bottom (2.5P)	200.00	54.00	100.00	36.32	27.23	31.75	4
1650009008	● M45 x 3	D10	Modified Bottom (2.5P)	200.00	48.00	100.00	38.58	28.93	31.75	4
1650009108	● M45 x 4.5	D12	Modified Bottom (2.5P)	220.00	54.00	120.00	38.58	28.93	31.75	4
1650009208	● M48 x 1.5	D8	Modified Bottom (2.5P)	190.00	48.00	80.00	41.76	31.32	34.93	4
1650009308	● M48 x 2	D9	Modified Bottom (2.5P)	190.00	48.00	80.00	41.76	31.32	34.93	4
1650009408	● M48 x 3	D11	Modified Bottom (2.5P)	225.00	48.00	115.00	41.76	31.32	34.93	4
1650009508	● M48 x 5	D13	Modified Bottom (2.5P)	250.00	60.00	140.00	41.76	31.32	34.93	4
1650009608	● M56 x 5.5	D14	Modified Bottom (2.5P)	250.00	66.00	130.00	48.11	36.07	36.51	4

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○*					

\*For Pure Titanium

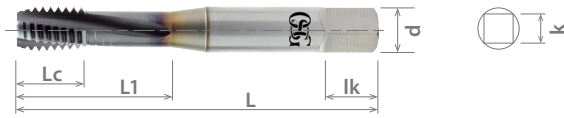
○ good ⊙ best



## V-Ti-SFT

List 345Ti, EXOTAP® VC-10 V-Ti-SFT

SPIRAL FLUTE	VC10	V	3 FLUTE	C/2.5P	10°	PACKED 1 PIECE
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EDP Number		Thread Size	Thread Limit	Overall Length	Thread Length	Neck Length	Shank Diameter	Square Width	Square Length
				L (mm)	Lc (mm)	L1 (mm)	d (mm)	k (mm)	lk (mm)
1316210008	●	M2.5 x 0.45	D3	46.00	12.70	-	3.58	2.79	4.76
1316210108	●	M3 x 0.5	D3	49.20	16.00	-	3.58	2.79	4.76
1316210208	●	M4 x 0.7	D4	54.00	19.10	-	4.27	3.33	6.35
1316210308	●	M5 x 0.8	D4	60.30	22.20	-	4.93	3.86	6.35
1316210408	●	M6 x 1	D5	63.50	25.40	-	6.48	4.85	7.94
1316210508	●	M8 x 1.25	D5	69.10	10.00	28.60	8.08	6.05	9.53
1316210608	●	M10 x 1.25	D5	74.60	12.00	31.80	9.68	7.26	11.11
1316210708	●	M10 x 1.5	D6	74.60	12.00	31.80	9.68	7.26	11.11
1316210908	●	M12 x 1.25	D5	85.70	14.00	49.10	9.32	6.99	11.11
1316210808	●	M12 x 1.75	D6	85.70	14.00	49.10	9.32	6.99	11.11

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○					

○ good ⊙ best



# MILLING

A Brand AE-VMS - Advanced Performance Anti-Vibration Carbide End Mills

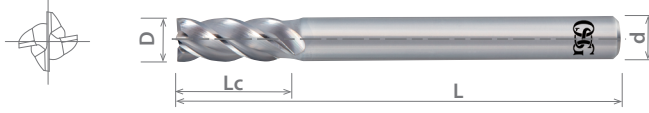
## AE-VMS

List 8200, A BRAND AE-VMS, 4 Flute, Multiple Length



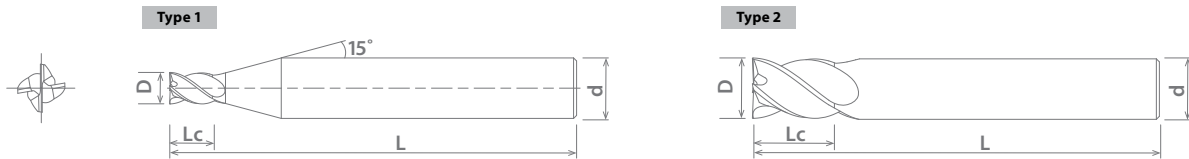
CARBIDE	DUARISE	4 FLUTE	37-40°		SHANK h6	STUB	REG	PACKED 1 PIECE
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Cutting Diameter Tolerance	
5/64" ≤ D ≤ 7/16"	+0 / -0.0008"
1/2" ≤ D ≤ 1"	+0 / -0.0012"



EDP Number		Diameter		Length of Cut		Overall Length		Shank Diameter		Type
		D (Fractional Size)	Lc (inch)	L (inch)	d (inch)					
82004421	●	5/64	0.117	2.000	0.125	1				
82004621	●	3/32	0.141	2.000	0.125	1				
82004821	●	7/64	0.164	2.000	0.125	1				
82005021	●	1/8	0.188	2.000	0.125	1				
82005221	●	9/64	0.211	2.000	0.188	1				
82005421	●	5/32	0.234	2.000	0.188	1				
82000021	●	3/16	0.438	2.000	0.188	2				
82000221	●	1/4	0.438	2.500	0.250	2				
82000421	●	5/16	0.813	2.500	0.313	2				
82000621	●	3/8	0.500	2.500	0.375	2				
82000821	●	3/8	0.875	2.500	0.375	2				
82001021	●	7/16	1.000	2.750	0.438	2				
82001221	●	1/2	0.625	2.500	0.500	2				
82001421	●	1/2	1.000	3.000	0.500	2				
82001621	●	1/2	1.250	3.500	0.500	2				
82001821	●	5/8	0.750	3.000	0.625	2				
82002021	●	5/8	1.250	3.500	0.625	2				
82002221	●	5/8	1.625	5.000	0.625	2				
82002421	●	3/4	0.875	3.500	0.750	2				
82002621	●	3/4	1.500	4.000	0.750	2				
82002821	●	3/4	1.625	4.000	0.750	2				
82003021	●	1	1.500	4.000	1.000	2				
82003221	●	1	2.000	5.000	1.000	2				
82003421	●	1	2.500	5.000	1.000	2				

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
◎	○	○				

○ good ◎ best

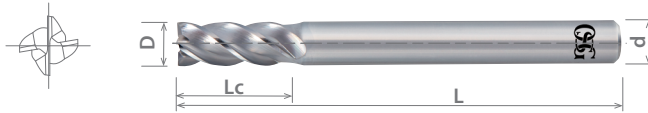


## AE-VMS

List 8205, A BRAND AE-VMS



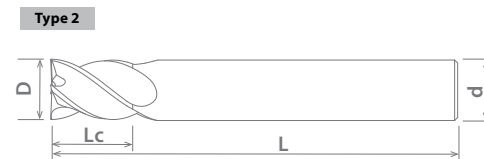
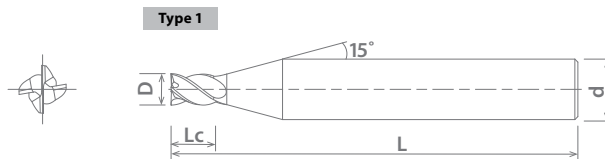
CARBIDE	DUARISE	4 FLUTE	37-40°			SHANK h6	REG	PACKED 1 PIECE
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Cutting Diameter Tolerance	
3mm ≤ D ≤ 12mm	+0 / -0.020mm
16mm ≤ D ≤ 25mm	+0 / -0.030mm

EDP Number	Diameter	Length of Cut	Overall Length	Shank Diameter	Type
8555830	3.00	8.00	60.00	6.00	1
8555840	4.00	11.00	60.00	6.00	1
8555850	5.00	13.00	60.00	6.00	1
8555860	6.00	13.00	60.00	6.00	2
8555880	8.00	19.00	70.00	8.00	2
8555900	10.00	22.00	80.00	10.00	2
8555920	12.00	26.00	90.00	12.00	2
8555960	16.00	32.00	100.00	16.00	2
8556000	20.00	40.00	110.00	20.00	2
8556010	25.00	50.00	120.00	25.00	2

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
◎	○	○				

○ good ◎ best



# MILLING

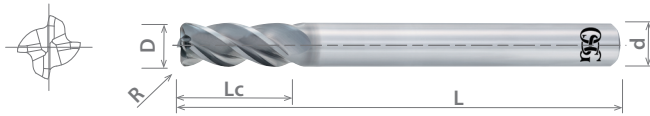
A Brand AE-CR-VMS - Advanced Performance Anti-Vibration Carbide End Mills

## AE-CR-VMS

List 8210, A BRAND AE-CR-VMS



CARBIDE	DUARISE	4 FLUTE	37-40°		SHRINK FIT	STUB	REG	PACKED 1 PIECE
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Cutting Diameter Tolerance	
3/16" ≤ D ≤ 7/16"	+0 / -0.0008"
1/2" ≤ D ≤ 1"	+0 / -0.0012"

Radius Tolerance	
0.015 ≤ R ≤ 0.125	+/- 0.0008"

EDP Number		Dia.	Corner Radius	Length of Cut	Overall Length	Shank Dia.
		D (Fractional Size)	R (inch)	Lc (inch)	L (inch)	d (inch)
82100021	●	3/16	0.015	0.438	2.000	0.188
82100221	●	3/16	0.030	0.438	2.000	0.188
82100421	●	1/4	0.015	0.438	2.500	0.250
82100621	●	1/4	0.030	0.438	2.500	0.250
82100821	●	5/16	0.015	0.813	2.500	0.313
82101021	●	5/16	0.030	0.813	2.500	0.313
82101221	●	3/8	0.015	0.500	2.500	0.375
82101421	●	3/8	0.030	0.500	2.500	0.375
82101621	●	3/8	0.045	0.500	2.500	0.375
82101821	●	3/8	0.060	0.500	2.500	0.375
82102021	●	3/8	0.015	0.875	2.500	0.375
82102221	●	3/8	0.030	0.875	2.500	0.375
82102421	●	3/8	0.045	0.875	2.500	0.375
82102621	●	3/8	0.060	0.875	2.500	0.375
82102821	●	7/16	0.015	1.000	2.750	0.438
82103021	●	7/16	0.030	1.000	2.750	0.438
82103221	●	1/2	0.015	0.625	2.500	0.500
82103421	●	1/2	0.030	0.625	2.500	0.500
82103621	●	1/2	0.045	0.625	2.500	0.500
82103821	●	1/2	0.060	0.625	2.500	0.500
82104021	●	1/2	0.090	0.625	2.500	0.500
82104221	●	1/2	0.015	1.000	3.000	0.500
82104421	●	1/2	0.030	1.000	3.000	0.500
82104621	●	1/2	0.045	1.000	3.000	0.500
82104821	●	1/2	0.060	1.000	3.000	0.500
82105021	●	1/2	0.090	1.000	3.000	0.500

EDP Number		Dia.	Corner Radius	Length of Cut	Overall Length	Shank Dia.
		D (Fractional Size)	R (inch)	Lc (inch)	L (inch)	d (inch)
82105221	●	1/2	0.015	1.250	3.500	0.500
82105421	●	1/2	0.030	1.250	3.500	0.500
82105621	●	1/2	0.045	1.250	3.500	0.500
82105821	●	1/2	0.060	1.250	3.500	0.500
82106021	●	1/2	0.090	1.250	3.500	0.500
82106221	●	5/8	0.030	0.750	3.000	0.625
82106421	●	5/8	0.060	0.750	3.000	0.625
82106621	●	5/8	0.090	0.750	3.000	0.625
82106821	●	5/8	0.125	0.750	3.000	0.625
82107021	●	5/8	0.030	1.250	3.500	0.625
82107221	●	5/8	0.060	1.250	3.500	0.625
82107421	●	5/8	0.090	1.250	3.500	0.625
82107621	●	5/8	0.125	1.250	3.500	0.625
82107821	●	3/4	0.030	0.875	3.500	0.750
82108021	●	3/4	0.060	0.875	3.500	0.750
82108221	●	3/4	0.090	0.875	3.500	0.750
82108421	●	3/4	0.125	0.875	3.500	0.750
82108621	●	3/4	0.030	1.500	4.000	0.750
82108821	●	3/4	0.060	1.500	4.000	0.750
82109021	●	3/4	0.090	1.500	4.000	0.750
82109221	●	3/4	0.125	1.500	4.000	0.750
82109421	●	1	0.030	1.500	4.000	1.000
82109621	●	1	0.060	1.500	4.000	1.000
82109821	●	1	0.090	1.500	4.000	1.000
82109921	●	1	0.125	1.500	4.000	1.000

● Stocked ○ Available Upon Request; MOQ May Apply  
▲ Globally Stocked



● Stocked ○ Available Upon Request; MOQ May Apply  
▲ Globally Stocked



Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○	○				

○ good ○ best



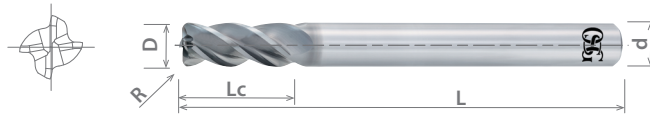


## AE-CR-VMS

List 8215, A BRAND AE-CR-VMS



CARBIDE DUARISE 4 FLUTE 37-40° SHRINK FIT REG PACKED 1 PIECE

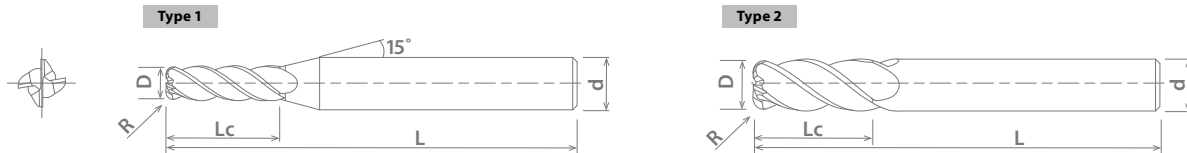


Cutting Diameter Tolerance	
3mm ≤ D ≤ 12mm	+0 / -0.020mm

Radius Tolerance	
0.2 ≤ R ≤ 3	+/- 0.020mm

EDP Number		Diameter	Corner Radius	Length of Cut	Overall Length	Shank Diameter	Type
		D (mm)	R (mm)	Lc (mm)	L (mm)	d (mm)	
8556050	●	3.00	0.20	8.00	60.00	6.00	1
8556060	●	3.00	0.50	8.00	60.00	6.00	1
8556070	●	4.00	0.20	11.00	60.00	6.00	1
8556080	●	4.00	0.50	11.00	60.00	6.00	1
8556090	●	4.00	1.00	11.00	60.00	6.00	1
8556100	●	5.00	0.20	13.00	60.00	6.00	1
8556110	●	5.00	0.50	13.00	60.00	6.00	1
8556120	●	5.00	1.00	13.00	60.00	6.00	1
8556130	●	6.00	0.30	13.00	60.00	6.00	2
8556140	●	6.00	0.50	13.00	60.00	6.00	2
8556150	●	6.00	1.00	13.00	60.00	6.00	2
8556160	●	8.00	0.30	19.00	70.00	8.00	2
8556170	●	8.00	0.50	19.00	70.00	8.00	2
8556180	●	8.00	1.00	19.00	70.00	8.00	2
8556190	●	8.00	1.50	19.00	70.00	8.00	2
8556200	●	8.00	2.00	19.00	70.00	8.00	2
8556210	●	10.00	0.30	22.00	80.00	10.00	2
8556220	●	10.00	0.50	22.00	80.00	10.00	2
8556230	●	10.00	1.00	22.00	80.00	10.00	2
8556240	●	10.00	1.50	22.00	80.00	10.00	2
8556250	●	10.00	2.00	22.00	80.00	10.00	2
8556260	●	10.00	3.00	22.00	80.00	10.00	2
8556270	●	12.00	0.50	26.00	90.00	12.00	2
8556280	●	12.00	1.00	26.00	90.00	12.00	2
8556290	●	12.00	1.50	26.00	90.00	12.00	2
8556300	●	12.00	2.00	26.00	90.00	12.00	2
8556310	●	12.00	3.00	26.00	90.00	12.00	2

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
◎	○	○				

○ good ◎ best



# MILLING

A Brand AE-VMSS - Advanced Performance Anti-Vibration Carbide End Mills

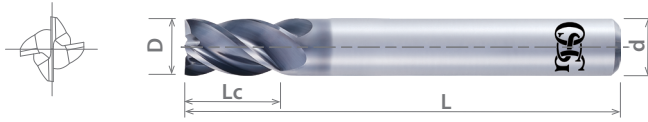
## AE-VMSS

List 8206, A BRAND AE-VMSS



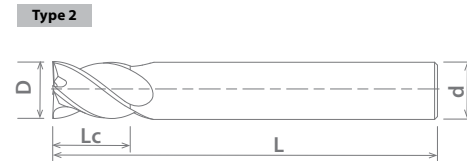
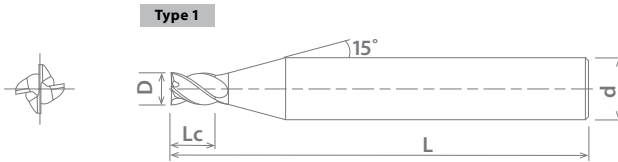
CARBIDE	DUARISE	4 FLUTE	37-40°		SHANK h6	STUB	PACKED 1 PIECE
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Cutting Diameter Tolerance	
3mm ≤ D ≤ 12mm	+0 / -0.020mm



EDP Number		Diameter		Length of Cut	Overall Length	Shank Diameter	Type
		D (mm)	Lc (mm)	L (mm)	d (mm)		
8556430	●	3.00	4.50	45.00	6.00	1	
8556440	●	4.00	6.00	45.00	6.00	1	
8556450	●	5.00	7.50	45.00	6.00	1	
8556460	●	6.00	9.00	45.00	6.00	2	
8556480	●	8.00	12.00	60.00	8.00	2	
8556500	●	10.00	15.00	70.00	10.00	2	
8556520	●	12.00	18.00	75.00	12.00	2	

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
◎	○	○				

○ good ◎ best

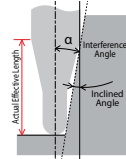


## AE-LNBD-H

List 8590, A BRAND AE-LNBD-H, Long Neck, Rib Processing



CARBIDE	DUROREY	2 FLUTE	30°	SHANK h4	STUB	PACKED 1 PIECE
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Cutting Diameter Tolerance	
0.1mm ≤ D ≤ 0.5mm	+/- 0.003mm
0.6mm ≤ D ≤ 6mm	+/- 0.005mm

EDP Number	Diameter	Length of Cut	Neck Length	Non-Taper Neck Length	Neck Diameter	Interference Angle	Effective Neck Length by Incline Angle					Overall Length	Shank Diameter	Type
							0.5° (mm)	1.0° (mm)	1.5° (mm)	2.0° (mm)	3.0° (mm)			
3056101	0.10	0.08	7.60	0.30	0.10	14.52	0.30	0.31	0.32	0.33	0.36	45.00	4.00	1
3056102	0.10	0.08	7.80	0.50	0.10	14.16	0.51	0.53	0.54	0.56	0.60	45.00	4.00	1
3056104	0.20	0.16	7.60	0.50	0.19	14.18	0.53	0.54	0.56	0.58	0.62	45.00	4.00	1
3056105	0.20	0.16	7.90	0.75	0.19	13.74	0.79	0.81	0.84	0.86	0.93	45.00	4.00	1
3056106	0.20	0.16	8.10	1.00	0.19	13.33	1.04	1.08	1.11	1.15	1.24	45.00	4.00	1
3056109	0.20	0.16	8.60	1.50	0.19	12.58	1.56	1.61	1.67	1.73	1.86	45.00	4.00	1
3056110	0.20	0.16	8.90	1.75	0.19	12.23	1.82	1.88	1.94	2.01	2.17	45.00	4.00	1
3056111	0.20	0.16	9.10	2.00	0.19	11.90	2.08	2.15	2.22	2.30	2.48	45.00	4.00	1
3056115	0.30	0.24	7.50	0.60	0.29	14.06	0.63	0.65	0.66	0.68	0.73	45.00	4.00	1
3056117	0.30	0.24	7.90	1.00	0.29	13.36	1.04	1.07	1.11	1.14	1.23	45.00	4.00	1
3056118	0.30	0.24	8.20	1.25	0.29	12.96	1.30	1.34	1.39	1.43	1.54	45.00	4.00	1
3056119	0.30	0.24	8.40	1.50	0.29	12.59	1.56	1.61	1.66	1.72	1.85	45.00	4.00	1
3056122	0.30	0.24	8.90	2.00	0.29	11.89	2.08	2.14	2.22	2.29	2.47	45.00	4.00	1
3056124	0.30	0.24	9.40	2.50	0.29	11.27	2.59	2.68	2.77	2.87	3.09	45.00	4.00	1
3056125	0.30	0.24	9.90	3.00	0.29	10.71	3.11	3.21	3.32	3.44	3.71	45.00	4.00	1
3056127	0.30	0.24	10.90	4.00	0.29	9.74	4.14	4.28	4.43	4.59	4.96	45.00	4.00	1
3056129	0.30	0.24	11.90	5.00	0.29	8.93	5.18	5.35	5.54	5.74	6.20	45.00	4.00	1
3056132	0.40	0.30	7.60	0.80	0.38	13.71	0.85	0.88	0.90	0.93	0.99	45.00	4.00	1
3056133	0.40	0.30	7.80	1.00	0.38	13.37	1.06	1.09	1.12	1.16	1.24	45.00	4.00	1
3056135	0.40	0.30	8.30	1.50	0.38	12.57	1.58	1.63	1.68	1.73	1.86	45.00	4.00	1
3056136	0.40	0.30	8.80	2.00	0.38	11.86	2.09	2.16	2.23	2.31	2.48	45.00	4.00	1
3056138	0.40	0.30	9.30	2.50	0.38	11.22	2.61	2.70	2.79	2.88	3.10	45.00	4.00	1
3056139	0.40	0.30	9.80	3.00	0.38	10.65	3.13	3.23	3.34	3.46	3.72	45.00	4.00	1
3056140	0.40	0.30	10.30	3.50	0.38	10.14	3.64	3.76	3.89	4.03	4.35	45.00	4.00	1
3056141	0.40	0.30	10.80	4.00	0.38	9.67	4.16	4.30	4.45	4.61	4.97	45.00	4.00	1
3056143	0.40	0.30	11.80	5.00	0.38	8.85	5.20	5.37	5.56	5.76	6.21	45.00	4.00	1
3056145	0.40	0.30	12.80	6.00	0.38	8.15	6.23	6.44	6.66	6.91	7.45	45.00	4.00	1
3056147	0.50	0.40	7.60	1.00	0.48	13.40	1.06	1.09	1.12	1.15	1.23	45.00	4.00	1
3056148	0.50	0.40	8.10	1.50	0.48	12.58	1.58	1.62	1.67	1.73	1.85	45.00	4.00	1
3056149	0.50	0.40	8.60	2.00	0.48	11.85	2.09	2.16	2.23	2.30	2.47	45.00	4.00	1
3056150	0.50	0.40	9.10	2.50	0.48	11.20	2.61	2.69	2.78	2.88	3.09	45.00	4.00	1
3056151	0.50	0.40	9.60	3.00	0.48	10.62	3.13	3.23	3.33	3.45	3.71	45.00	4.00	1
3056152	0.50	0.40	10.10	3.50	0.48	10.09	3.64	3.76	3.89	4.03	4.33	45.00	4.00	1
3056153	0.50	0.40	10.60	4.00	0.48	9.61	4.16	4.30	4.44	4.60	4.95	45.00	4.00	1
3056154	0.50	0.40	11.10	4.50	0.48	9.18	4.68	4.83	5.00	5.18	5.58	45.00	4.00	1
3056155	0.50	0.40	11.60	5.00	0.48	8.78	5.19	5.37	5.55	5.75	6.20	45.00	4.00	1
3056157	0.50	0.40	12.60	6.00	0.48	8.08	6.23	6.44	6.66	6.90	7.44	45.00	4.00	1
3056159	0.50	0.40	14.60	8.00	0.48	6.97	8.29	8.58	8.88	9.20	9.93	45.00	4.00	1
3056161	0.50	0.40	16.60	10.00	0.48	6.12	10.36	10.71	11.09	11.50	12.41	45.00	4.00	1
3056164	0.60	0.50	7.60	1.20	0.55	12.99	1.32	1.36	1.40	1.44	1.53	45.00	4.00	1
3056166	0.60	0.50	8.40	2.00	0.55	11.76	2.15	2.21	2.28	2.36	2.53	45.00	4.00	1
3056168	0.60	0.50	8.90	2.50	0.55	11.10	2.67	2.75	2.84	2.93	3.15	45.00	4.00	1
3056169	0.60	0.50	9.40	3.00	0.55	10.51	2.67	2.75	2.84	2.93	3.15	45.00	4.00	1
3056171	0.60	0.50	9.90	3.50	0.55	9.98	3.70	3.82	3.95	4.08	4.39	45.00	4.00	1
3056172	0.60	0.50	10.40	4.00	0.55	9.50	4.22	4.35	4.50	4.66	5.01	45.00	4.00	1
3056175	0.60	0.50	11.40	5.00	0.55	8.67	5.25	5.42	5.61	5.81	6.26	45.00	4.00	1
3056176	0.60	0.50	11.90	5.50	0.55	8.30	5.77	5.96	6.16	6.38	6.88	45.00	4.00	1
3056177	0.60	0.50	12.40	6.00	0.55	7.96	6.28	6.49	6.72	6.96	7.50	45.00	4.00	1

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



CONTINUED

Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	⊙					

○ good ⊙ best

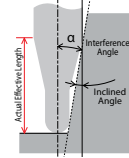


# MILLING

A Brand AE-VMSS - Advanced Performance Anti-Vibration Carbide End Mills

## AE-LNBD-H (Continued)

List 8590, A BRAND AE-LNBD-H, Long Neck, Rib Processing



Cutting Diameter Tolerance	
0.1mm ≤ D ≤ 0.5mm	+/- 0.003mm
0.6mm ≤ D ≤ 6mm	+/- 0.005mm

EDP Number	Diameter	Length of Cut	Neck Length	Non-Taper Neck Length	Neck Diameter	Interference Angle	Effective Neck Length by Incline Angle					Overall Length	Shank Diameter	Type
							0.5° (mm)	1.0° (mm)	1.5° (mm)	2.0° (mm)	3.0° (mm)			
3056178	0.60	0.50	12.90	6.50	0.55	7.65	6.80	7.03	7.27	7.53	8.12	45.00	4.00	1
3056181	0.60	0.50	14.40	8.00	0.55	6.85	8.35	8.63	8.93	9.26	9.99	45.00	4.00	1
3056185	0.60	0.50	16.40	10.00	0.55	6.01	10.42	10.77	11.15	11.56	12.47	45.00	4.00	1
3056187	0.60	0.50	18.40	12.00	0.55	5.36	12.49	12.91	13.37	13.86	14.96	50.00	4.00	1
3056190	0.80	0.60	8.10	2.00	0.75	11.74	2.15	2.21	2.27	2.34	2.50	45.00	4.00	1
3056193	0.80	0.60	9.10	3.00	0.75	10.42	3.18	3.28	3.38	3.49	3.75	45.00	4.00	1
3056194	0.80	0.60	10.10	4.00	0.75	9.37	4.21	4.35	4.49	4.64	4.99	45.00	4.00	1
3056195	0.80	0.60	11.10	5.00	0.75	8.51	5.25	5.42	5.60	5.79	6.23	45.00	4.00	1
3056196	0.80	0.60	12.10	6.00	0.75	7.80	6.28	6.49	6.71	6.94	7.48	45.00	4.00	1
3056197	0.80	0.60	13.10	7.00	0.75	7.19	7.31	7.55	7.81	8.09	8.72	45.00	4.00	1
3056198	0.80	0.60	14.10	8.00	0.75	6.67	8.35	8.62	8.92	9.24	9.96	45.00	4.00	1
3056200	0.80	0.60	16.10	10.00	0.75	5.83	10.41	10.76	11.14	11.54	12.45	45.00	4.00	1
3056203	1.00	0.80	7.70	2.00	0.95	11.71	2.14	2.20	2.26	2.33	2.48	45.00	4.00	1
3056206	1.00	0.80	8.70	3.00	0.95	10.33	3.18	3.27	3.37	3.48	3.72	45.00	4.00	1
3056208	1.00	0.80	9.70	4.00	0.95	9.23	4.21	4.34	4.48	4.63	4.97	45.00	4.00	1
3056210	1.00	0.80	10.70	5.00	0.95	8.35	5.24	5.41	5.59	5.78	6.21	45.00	4.00	1
3056212	1.00	0.80	11.70	6.00	0.95	7.62	6.28	6.48	6.69	6.93	7.45	45.00	4.00	1
3056214	1.00	0.80	12.70	7.00	0.95	7.00	7.31	7.55	7.80	8.08	8.69	45.00	4.00	1
3056216	1.00	0.80	13.70	8.00	0.95	6.48	8.34	8.62	8.91	9.23	9.94	45.00	4.00	1
3056218	1.00	0.80	14.70	9.00	0.95	6.03	9.38	9.69	10.02	10.38	11.18	45.00	4.00	1
3056219	1.00	0.80	15.70	10.00	0.95	5.64	10.41	10.76	11.13	11.53	12.42	45.00	4.00	1
3056221	1.00	0.80	17.70	12.00	0.95	4.99	12.48	12.90	13.34	13.83	14.91	45.00	4.00	1
3056223	1.00	0.80	19.70	14.00	0.95	4.47	14.55	15.04	15.56	16.13	17.40	50.00	4.00	1
3056224	1.00	0.80	21.70	16.00	0.95	4.05	16.61	17.18	17.78	18.43	19.88	50.00	4.00	1
3056225	1.00	0.80	23.70	18.00	0.95	3.70	18.68	19.31	19.99	20.73	22.37	55.00	4.00	1
3056226	1.00	0.80	25.70	20.00	0.95	3.41	20.75	21.45	22.21	23.03	24.86	55.00	4.00	1
3056227	1.00	0.80	27.70	22.00	0.95	3.16	22.82	23.59	24.43	25.33	27.34	60.00	4.00	1
3056231	1.20	1.00	7.70	2.40	1.15	11.04	2.55	2.62	2.69	2.77	2.95	45.00	4.00	1
3056234	1.20	1.00	9.30	4.00	1.15	9.08	4.21	4.33	4.47	4.61	4.94	45.00	4.00	1
3056236	1.20	1.00	11.30	6.00	1.15	7.42	6.27	6.47	6.68	6.91	7.43	45.00	4.00	1
3056237	1.20	1.00	13.30	8.00	1.15	6.27	8.34	8.61	8.90	9.21	9.91	45.00	4.00	1
3056238	1.20	1.00	15.30	10.00	1.15	5.43	10.41	10.75	11.12	11.51	12.40	45.00	4.00	1
3056243	1.20	1.00	25.30	20.00	1.15	3.24	20.74	21.45	22.20	23.01	24.83	55.00	4.00	1
3056257	1.50	1.20	18.80	14.00	1.45	3.97	14.54	15.02	15.53	16.09	17.34	50.00	4.00	1
3056258	1.50	1.20	20.80	16.00	1.45	3.58	16.60	17.16	17.75	18.39	19.82	50.00	4.00	1
3056246	1.50	1.20	7.80	3.00	1.45	10.03	2.65	2.72	2.79	2.87	3.04	55.00	4.00	1
3056248	1.50	1.20	8.80	4.00	1.45	8.81	4.20	4.32	4.45	4.59	4.91	55.00	4.00	1
3056251	1.50	1.20	10.80	6.00	1.45	7.09	6.27	6.46	6.67	6.89	7.39	55.00	4.00	1
3056253	1.50	1.20	12.80	8.00	1.45	5.93	8.34	8.60	8.88	9.19	9.88	55.00	4.00	1
3056255	1.50	1.20	14.80	10.00	1.45	5.09	10.40	10.74	11.10	11.49	12.36	55.00	4.00	1
3056256	1.50	1.20	16.80	12.00	1.45	4.46	12.47	12.88	13.32	13.79	14.85	55.00	4.00	1
3056259	1.50	1.20	22.80	18.00	1.45	3.25	18.67	19.30	19.97	20.69	22.31	55.00	4.00	1
3056260	1.50	1.20	24.80	20.00	1.45	2.98	20.74	21.44	22.18	22.99	-	55.00	4.00	1
3056261	1.50	1.20	26.80	22.00	1.45	2.75	22.81	23.58	24.40	25.29	-	60.00	4.00	1
3056263	1.50	1.20	34.80	30.00	1.45	2.11	31.08	32.13	33.27	34.49	-	70.00	4.00	1
3056265	1.60	1.30	12.60	8.00	1.55	5.81	8.33	8.60	8.88	9.18	9.87	45.00	4.00	1
3056266	1.60	1.30	16.60	12.00	1.55	4.35	12.47	12.88	13.31	13.78	14.84	45.00	4.00	1
3056267	1.60	1.30	20.60	16.00	1.55	3.47	16.60	17.15	17.75	18.38	19.81	50.00	4.00	1
3056268	1.60	1.30	24.60	20.00	1.55	2.89	20.74	21.43	22.18	22.98	-	55.00	4.00	1
3056272	2.00	1.60	7.80	4.00	1.95	8.25	4.19	4.30	4.42	4.55	4.85	45.00	4.00	1
3056275	2.00	1.60	9.80	6.00	1.95	6.43	6.26	6.44	6.64	6.85	7.33	45.00	4.00	1
3056277	2.00	1.60	11.80	8.00	1.95	5.26	8.33	8.58	8.86	9.15	9.82	45.00	4.00	1
3056279	2.00	1.60	13.80	10.00	1.95	4.45	10.39	10.72	11.07	11.45	12.31	45.00	4.00	1
3056281	2.00	1.60	15.80	12.00	1.95	3.86	12.46	12.86	13.29	13.75	14.79	45.00	4.00	1
3056284	2.00	1.60	17.80	14.00	1.95	3.40	14.53	15.00	15.51	16.05	17.28	50.00	4.00	1
3056285	2.00	1.60	19.80	16.00	1.95	3.04	16.60	17.14	17.72	18.35	19.76	50.00	4.00	1
3056288	2.00	1.60	23.80	20.00	1.95	2.51	20.73	21.42	22.16	22.95	-	55.00	4.00	1
3056290	2.00	1.60	25.80	22.00	1.95	2.31	22.80	23.56	24.37	25.25	-	60.00	4.00	1
3056291	2.00	1.60	28.80	25.00	1.95	2.06	25.90	26.77	27.70	28.70	-	65.00	4.00	1
3056293	2.00	1.60	33.80	30.00	1.95	1.75	31.07	32.12	33.24	-	-	70.00	4.00	1

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



## AE-LNBD-H (Continued)

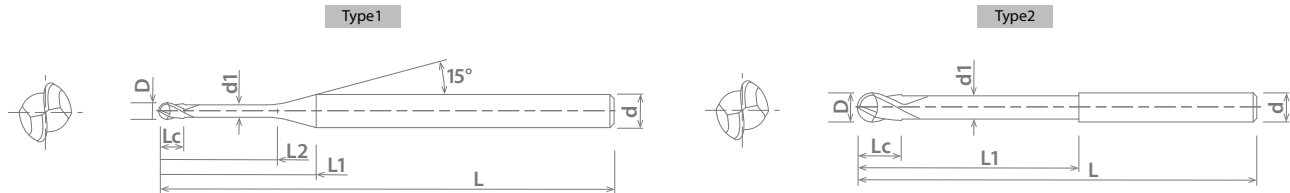


CARBIDE DUOREY 2 FLUTE 30° SHANK h4 STUB PACKED 1 PIECE

List 8590, A BRAND AE-LNBD-H, Long Neck, Rib Processing

EDP Number	Diameter	Length of Cut	Neck Length	Non-Taper Neck Length	Neck Diameter	Interference Angle	Effective Neck Length by Incline Angle					Overall Length	Shank Diameter	Type
							0.5° (mm)	1.0° (mm)	1.5° (mm)	2.0° (mm)	3.0° (mm)			
3056294	2.00	1.60	38.80	35.00	1.95	1.52	36.24	37.46	38.78	-	-	70.00	4.00	1
3056295	2.00	1.60	43.80	40.00	1.95	1.34	41.40	42.81	-	-	-	80.00	4.00	1
3056298	2.50	2.00	13.10	10.00	2.35	3.62	10.58	10.90	11.25	11.63	12.48	45.00	4.00	1
3056299	2.50	2.00	18.10	15.00	2.35	2.55	15.75	16.25	16.80	17.38	-	50.00	4.00	1
3056300	2.50	2.00	23.10	20.00	2.35	1.97	20.92	21.60	22.34	-	-	55.00	4.00	1
3056303	2.50	2.00	38.10	35.00	2.35	1.17	36.42	37.65	-	-	-	70.00	4.00	1
3056304	3.00	2.40	11.90	6.00	2.85	8.15	6.44	6.61	6.79	7.00	7.45	50.00	6.00	1
3056305	3.00	2.40	13.90	8.00	2.85	6.87	8.50	8.75	9.01	9.29	9.93	50.00	6.00	1
3056306	3.00	2.40	15.90	10.00	2.85	5.93	10.57	10.89	11.23	11.59	12.42	50.00	6.00	1
3056307	3.00	2.40	17.90	12.00	2.85	5.22	12.64	13.03	13.44	13.89	14.91	55.00	6.00	1
3056309	3.00	2.40	19.90	14.00	2.85	4.66	14.71	15.17	15.66	16.19	17.39	55.00	6.00	1
3056310	3.00	2.40	20.90	15.00	2.85	4.42	15.74	16.24	16.77	17.34	18.63	55.00	6.00	1
3056311	3.00	2.40	21.90	16.00	2.85	4.20	16.77	17.31	17.88	18.49	19.88	55.00	6.00	1
3056312	3.00	2.40	25.90	20.00	2.85	3.52	20.91	21.58	22.31	23.09	24.85	60.00	6.00	1
3056313	3.00	2.40	30.90	25.00	2.85	2.92	26.08	26.93	27.85	28.84	-	65.00	6.00	1
3056314	3.00	2.40	35.90	30.00	2.85	2.50	31.24	32.28	33.39	34.59	-	70.00	6.00	1
3056318	3.50	2.80	19.90	15.00	3.35	3.92	15.73	16.22	16.74	17.31	18.58	55.00	6.00	1
3056327	4.00	3.20	12.00	8.00	3.85	5.65	8.49	8.71	8.96	9.22	9.81	60.00	6.00	1
3056328	4.00	3.20	14.00	10.00	3.85	4.73	10.55	10.85	11.17	11.52	12.30	60.00	6.00	1
3056329	4.00	3.20	16.00	12.00	3.85	4.07	12.62	12.99	13.39	13.82	14.79	60.00	6.00	1
3056333	4.00	3.20	20.00	16.00	3.85	3.17	16.76	17.27	17.82	18.42	19.76	60.00	6.00	1
3056334	4.00	3.20	24.00	20.00	3.85	2.60	20.89	21.55	22.26	23.02	-	65.00	6.00	1
3056335	4.00	3.20	29.00	25.00	3.85	2.12	26.06	26.90	27.80	28.77	-	70.00	6.00	1
3056336	4.00	3.20	34.00	30.00	3.85	1.79	31.23	32.25	33.34	-	-	80.00	6.00	1
3056337	4.00	3.20	39.00	35.00	3.85	1.55	36.40	37.60	38.88	-	-	80.00	6.00	1
3056338	4.00	3.20	44.00	40.00	3.85	1.37	41.56	42.94	-	-	-	90.00	6.00	1
3056339	4.00	3.20	49.00	45.00	3.85	1.22	46.73	48.29	-	-	-	90.00	6.00	1
3056341	5.00	4.00	12.10	10.00	4.85	2.95	10.54	10.82	11.12	11.45	-	60.00	6.00	1
3056342	5.00	4.00	17.10	15.00	4.85	1.95	15.71	16.17	16.66	-	-	60.00	6.00	1
3056344	5.00	4.00	27.10	25.00	4.85	1.17	26.04	26.86	16.66	-	-	60.00	6.00	1
3056345	5.00	4.00	32.10	30.00	4.85	0.97	31.21	-	16.66	-	-	80.00	6.00	1
3056347	5.00	4.00	42.10	40.00	4.85	0.73	41.55	-	16.66	-	-	90.00	6.00	1
3056351	6.00	4.80	-	12.00	5.85	-	-	-	16.66	-	-	60.00	6.00	2
3056353	6.00	4.80	-	20.00	5.85	-	-	-	16.66	-	-	70.00	6.00	2
3056355	6.00	4.80	-	30.00	5.85	-	-	-	16.66	-	-	80.00	6.00	2
3056356	6.00	4.80	-	35.00	5.85	-	-	-	16.66	-	-	80.00	6.00	2
3056358	6.00	4.80	-	45.00	5.85	-	-	-	16.66	-	-	100.00	6.00	2
3056359	6.00	4.80	-	50.00	5.85	-	-	-	16.66	-	-	120.00	6.00	2

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	⊙					

○ good ⊙ best



# MILLING

EXOCARB® WXL - Premium Performance Carbide End Mills with OSG's Proprietary WXL® Coating

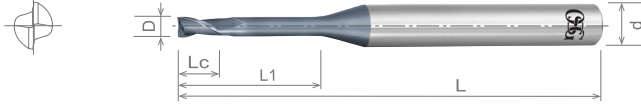
## WXL-LN-EDS

List 3791, EXOCARB® WXL®-LN-EDS, Long Neck, Rib Processing



CARBIDE	WXL	2 FLUTE	30°			SHANK	STUB	PACKED
						h6		1 PIECE

Cutting Diameter Tolerance	
0.2mm ≤ D ≤ 5mm	+0 / -0.015mm



EDP Number		Dia.		Length of Cut	Neck Length	Overall Length	Shank Dia.
		D (mm)	Lc (mm)	L1 (mm)	L (mm)	d (mm)	
3131201	●	0.20	0.30	0.50	45.00	4.00	
3131202	●	0.20	0.30	1.00	45.00	4.00	
3131203	●	0.20	0.30	1.50	45.00	4.00	
3131204	●	0.20	0.30	2.00	45.00	4.00	
3131205	●	0.20	0.30	2.50	45.00	4.00	
3131206	●	0.20	0.30	3.00	45.00	4.00	
3131207	●	0.20	0.30	3.50	45.00	4.00	
3131208	●	0.20	0.30	4.00	45.00	4.00	
3131302	●	0.30	0.45	1.00	45.00	4.00	
3131303	●	0.30	0.45	1.50	45.00	4.00	
3131304	●	0.30	0.45	2.00	45.00	4.00	
3131305	●	0.30	0.45	2.50	45.00	4.00	
3131306	●	0.30	0.45	3.00	45.00	4.00	
3131308	●	0.30	0.45	4.00	45.00	4.00	
3131310	●	0.30	0.45	5.00	45.00	4.00	
3131312	●	0.30	0.45	6.00	45.00	4.00	
3131318	●	0.30	0.45	9.00	45.00	4.00	
3131403	●	0.40	0.60	1.50	45.00	4.00	
3131404	●	0.40	0.60	2.00	45.00	4.00	
3131406	●	0.40	0.60	3.00	45.00	4.00	
3131408	●	0.40	0.60	4.00	45.00	4.00	
3131410	●	0.40	0.60	5.00	45.00	4.00	
3131412	●	0.40	0.60	6.00	45.00	4.00	
3131414	●	0.40	0.60	7.00	45.00	4.00	
3131416	●	0.40	0.60	8.00	45.00	4.00	
3131418	●	0.40	0.60	9.00	45.00	4.00	
3131420	●	0.40	0.60	10.00	45.00	4.00	
3131424	●	0.40	0.60	12.00	45.00	4.00	
3131501	●	0.50	0.70	1.50	45.00	4.00	
3131502	●	0.50	0.70	2.00	45.00	4.00	
3131503	●	0.50	0.70	3.00	45.00	4.00	
3131504	●	0.50	0.70	4.00	45.00	4.00	
3131505	●	0.50	0.70	5.00	45.00	4.00	
3131506	●	0.50	0.70	6.00	45.00	4.00	
3131507	●	0.50	0.70	7.00	45.00	4.00	
3131508	●	0.50	0.70	8.00	45.00	4.00	
3131509	●	0.50	0.70	9.00	45.00	4.00	
3131510	●	0.50	0.70	10.00	45.00	4.00	
3131512	●	0.50	0.70	12.00	45.00	4.00	
3131515	●	0.50	0.70	15.00	50.00	4.00	
3131602	●	0.60	0.90	2.00	45.00	4.00	
3131603	●	0.60	0.90	3.00	45.00	4.00	
3131604	●	0.60	0.90	4.00	45.00	4.00	
3131605	●	0.60	0.90	5.00	45.00	4.00	
3131606	●	0.60	0.90	6.00	45.00	4.00	
3131607	●	0.60	0.90	7.00	45.00	4.00	
3131608	●	0.60	0.90	8.00	45.00	4.00	
3131610	●	0.60	0.90	10.00	45.00	4.00	
3131612	●	0.60	0.90	12.00	45.00	4.00	
3131615	●	0.60	0.90	15.00	50.00	4.00	
3131618	●	0.60	0.90	18.00	50.00	4.00	
3131702	●	0.70	1.00	2.00	45.00	4.00	
3131704	●	0.70	1.00	4.00	45.00	4.00	
3131706	●	0.70	1.00	6.00	45.00	4.00	
3131708	●	0.70	1.00	8.00	45.00	4.00	
3131710	●	0.70	1.00	10.00	45.00	4.00	
3131804	●	0.80	1.20	4.00	45.00	4.00	
3131806	●	0.80	1.20	6.00	45.00	4.00	
3131808	●	0.80	1.20	8.00	45.00	4.00	
3131810	●	0.80	1.20	10.00	45.00	4.00	

EDP Number		Dia.		Length of Cut	Neck Length	Overall Length	Shank Dia.
		D (mm)	Lc (mm)	L1 (mm)	L (mm)	d (mm)	
3131812	●	0.80	1.20	12.00	45.00	4.00	
3131814	●	0.80	1.20	14.00	50.00	4.00	
3131816	●	0.80	1.20	16.00	50.00	4.00	
3131820	●	0.80	1.20	20.00	55.00	4.00	
3131824	●	0.80	1.20	24.00	60.00	4.00	
3131904	●	0.90	1.35	4.00	45.00	4.00	
3131906	●	0.90	1.35	6.00	45.00	4.00	
3131908	●	0.90	1.35	8.00	45.00	4.00	
3131910	●	0.90	1.35	10.00	45.00	4.00	
3131915	●	0.90	1.35	15.00	50.00	4.00	
3132003	●	1.00	1.50	3.00	45.00	4.00	
3132004	●	1.00	1.50	4.00	45.00	4.00	
3132005	●	1.00	1.50	5.00	45.00	4.00	
3132006	●	1.00	1.50	6.00	45.00	4.00	
3132007	●	1.00	1.50	7.00	45.00	4.00	
3132008	●	1.00	1.50	8.00	45.00	4.00	
3132009	●	1.00	1.50	9.00	45.00	4.00	
3132010	●	1.00	1.50	10.00	45.00	4.00	
3132012	●	1.00	1.50	12.00	45.00	4.00	
3132014	●	1.00	1.50	14.00	50.00	4.00	
3132016	●	1.00	1.50	16.00	50.00	4.00	
3132018	●	1.00	1.50	18.00	55.00	4.00	
3132020	●	1.00	1.50	20.00	55.00	4.00	
3132022	●	1.00	1.50	22.00	60.00	4.00	
3132025	●	1.00	1.50	25.00	60.00	4.00	
3132030	●	1.00	1.50	30.00	70.00	4.00	
3132204	●	1.20	1.80	4.00	45.00	4.00	
3132206	●	1.20	1.80	6.00	45.00	4.00	
3132208	●	1.20	1.80	8.00	45.00	4.00	
3132210	●	1.20	1.80	10.00	45.00	4.00	
3132212	●	1.20	1.80	12.00	45.00	4.00	
3132214	●	1.20	1.80	14.00	50.00	4.00	
3132216	●	1.20	1.80	16.00	50.00	4.00	
3132220	●	1.20	1.80	20.00	55.00	4.00	
3132406	●	1.40	2.10	6.00	45.00	4.00	
3132408	●	1.40	2.10	8.00	45.00	4.00	
3132410	●	1.40	2.10	10.00	45.00	4.00	
3132412	●	1.40	2.10	12.00	45.00	4.00	
3132414	●	1.40	2.10	14.00	50.00	4.00	
3132416	●	1.40	2.10	16.00	50.00	4.00	
3132422	●	1.40	2.10	22.00	60.00	4.00	
3132504	●	1.50	2.30	4.00	45.00	4.00	
3132506	●	1.50	2.30	6.00	45.00	4.00	
3132508	●	1.50	2.30	8.00	45.00	4.00	
3132510	●	1.50	2.30	10.00	45.00	4.00	
3132512	●	1.50	2.30	12.00	45.00	4.00	
3132514	●	1.50	2.30	14.00	50.00	4.00	
3132516	●	1.50	2.30	16.00	50.00	4.00	
3132518	●	1.50	2.30	18.00	55.00	4.00	
3132520	●	1.50	2.30	20.00	55.00	4.00	
3132525	●	1.50	2.30	25.00	60.00	4.00	
3132530	●	1.50	2.30	30.00	70.00	4.00	
3132538	●	1.50	2.30	38.00	80.00	4.00	
3132540	●	1.50	2.30	40.00	80.00	4.00	
3132545	●	1.50	2.30	45.00	80.00	4.00	
3132606	●	1.60	2.40	6.00	45.00	4.00	
3132608	●	1.60	2.40	8.00	45.00	4.00	
3132610	●	1.60	2.40	10.00	45.00	4.00	
3132612	●	1.60	2.40	12.00	45.00	4.00	
3132614	●	1.60	2.40	14.00	50.00	4.00	

● Stocked ○ Available Upon Request; MOQ May Apply  
▲ Globally Stocked



● Stocked ○ Available Upon Request; MOQ May Apply  
▲ Globally Stocked



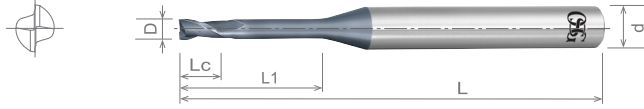
## WXL-LN-EDS (Continued)

List 3791, EXOCARB® WXL®-LN-EDS, Long Neck, Rib Processing



CARBIDE	WXL	2 FLUTE	30°			SHANK h6	STUB	PACKED 1 PIECE
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Cutting Diameter Tolerance	
0.2mm ≤ D ≤ 5mm	+0 / -0.015mm



EDP Number		Dia.		Length of Cut		Neck Length		Overall Length		Shank Dia.	
		D (mm)	Lc (mm)	L1 (mm)	L (mm)	L (mm)	d (mm)				
3132616	●	1.60	2.40	16.00	50.00	4.00					
3132618	●	1.60	2.40	18.00	55.00	4.00					
3132620	●	1.60	2.40	20.00	55.00	4.00					
3132806	●	1.80	2.70	6.00	45.00	4.00					
3132808	●	1.80	2.70	8.00	45.00	4.00					
3132810	●	1.80	2.70	10.00	45.00	4.00					
3132812	●	1.80	2.70	12.00	45.00	4.00					
3132814	●	1.80	2.70	14.00	50.00	4.00					
3132816	●	1.80	2.70	16.00	50.00	4.00					
3132818	●	1.80	2.70	18.00	55.00	4.00					
3132820	●	1.80	2.70	20.00	55.00	4.00					
3132825	●	1.80	2.70	25.00	60.00	4.00					
3133006	●	2.00	3.00	6.00	45.00	4.00					
3133008	●	2.00	3.00	8.00	45.00	4.00					
3133010	●	2.00	3.00	10.00	45.00	4.00					
3133012	●	2.00	3.00	12.00	45.00	4.00					
3133014	●	2.00	3.00	14.00	50.00	4.00					
3133016	●	2.00	3.00	16.00	50.00	4.00					
3133018	●	2.00	3.00	18.00	55.00	4.00					
3133020	●	2.00	3.00	20.00	55.00	4.00					
3133025	●	2.00	3.00	25.00	60.00	4.00					
3133030	●	2.00	3.00	30.00	70.00	4.00					
3133035	●	2.00	3.00	35.00	80.00	4.00					
3133040	●	2.00	3.00	40.00	90.00	4.00					
3133050	●	2.00	3.00	50.00	100.00	4.00					
3133060	●	2.00	3.00	60.00	110.00	4.00					
3133508	●	2.50	3.70	8.00	45.00	4.00					
3133510	●	2.50	3.70	10.00	45.00	4.00					
3133512	●	2.50	3.70	12.00	45.00	4.00					
3133514	●	2.50	3.70	14.00	50.00	4.00					
3133516	●	2.50	3.70	16.00	55.00	4.00					
3133518	●	2.50	3.70	18.00	55.00	4.00					
3133520	●	2.50	3.70	20.00	60.00	4.00					
3133525	●	2.50	3.70	25.00	70.00	4.00					

EDP Number		Dia.		Length of Cut		Neck Length		Overall Length		Shank Dia.	
		D (mm)	Lc (mm)	L1 (mm)	L (mm)	L (mm)	d (mm)				
3133530	●	2.50	3.70	30.00	80.00	4.00					
3133540	●	2.50	3.70	40.00	90.00	4.00					
3133550	●	2.50	3.70	50.00	100.00	4.00					
3134008	●	3.00	4.50	8.00	45.00	6.00					
3134010	●	3.00	4.50	10.00	45.00	6.00					
3134012	●	3.00	4.50	12.00	45.00	6.00					
3134014	●	3.00	4.50	14.00	50.00	6.00					
3134016	●	3.00	4.50	16.00	55.00	6.00					
3134018	●	3.00	4.50	18.00	55.00	6.00					
3134020	●	3.00	4.50	20.00	60.00	6.00					
3134025	●	3.00	4.50	25.00	65.00	6.00					
3134030	●	3.00	4.50	30.00	80.00	6.00					
3134035	●	3.00	4.50	35.00	90.00	6.00					
3134040	●	3.00	4.50	40.00	90.00	6.00					
3134050	●	3.00	4.50	50.00	100.00	6.00					
3135012	●	4.00	6.00	12.00	50.00	6.00					
3135016	●	4.00	6.00	16.00	60.00	6.00					
3135020	●	4.00	6.00	20.00	60.00	6.00					
3135025	●	4.00	6.00	25.00	70.00	6.00					
3135030	●	4.00	6.00	30.00	80.00	6.00					
3135035	●	4.00	6.00	35.00	90.00	6.00					
3135040	●	4.00	6.00	40.00	90.00	6.00					
3135045	●	4.00	6.00	45.00	100.00	6.00					
3135050	●	4.00	6.00	50.00	100.00	6.00					
3135060	●	4.00	6.00	60.00	110.00	6.00					
3136016	●	5.00	7.50	16.00	60.00	6.00					
3136020	●	5.00	7.50	20.00	70.00	6.00					
3136025	●	5.00	7.50	25.00	70.00	6.00					
3136030	●	5.00	7.50	30.00	90.00	6.00					
3136035	●	5.00	7.50	35.00	90.00	6.00					
3136040	●	5.00	7.50	40.00	100.00	6.00					
3136050	●	5.00	7.50	50.00	110.00	6.00					
3136060	●	5.00	7.50	60.00	120.00	6.00					

● Stocked ○ Available Upon Request; MOQ May Apply  
▲ Globally Stocked



● Stocked ○ Available Upon Request; MOQ May Apply  
▲ Globally Stocked



Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○	○	○	○	○	○

○ good ○ best



# MILLING

EXOPRO® PHX - Phoenix Deep Feed Radius End Mills

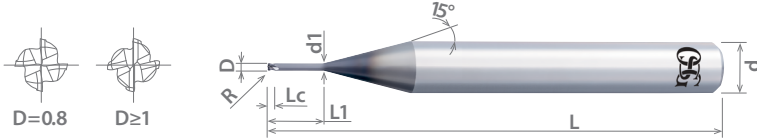
## PHX-LN-CRE

List 9592, EXOPRO® PHX-LN-CRE, Pencil Neck, Long Neck, Rib Processing



Cutting Diameter Tolerance	
0.8mm ≤ D ≤ 3mm	+0 / -0.015mm

Radius Tolerance	
0.1 ≤ R ≤ 0.5	+/- 0.007mm



EDP Number	Diameter	Corner Radius	Length of Cut	Neck Length	Neck Diameter	Effective Neck Length by Incline Angle			Overall Length	Shank Diameter	Center Cutting
						0° (mm)	0.5° (mm)	1.0° (mm)			
3190800	0.80	0.10	0.32	2.00	0.72	2.00	2.16	2.32	50.00	4.00	-
3190801	0.80	0.10	0.32	4.00	0.72	4.00	4.29	4.57	50.00	4.00	-
3190802	0.80	0.10	0.32	6.00	0.72	6.00	6.42	6.78	50.00	4.00	-
3190803	0.80	0.10	0.32	8.00	0.72	8.00	8.54	8.97	50.00	4.00	-
3191006	1.00	0.10	0.40	4.00	0.93	4.00	4.29	4.56	50.00	4.00	●
3191007	1.00	0.10	0.40	6.00	0.93	6.00	6.41	6.77	50.00	4.00	●
3191008	1.00	0.10	0.40	8.00	0.93	8.00	8.53	8.96	50.00	4.00	●
3191009	1.00	0.10	0.40	10.00	0.93	10.00	10.63	11.13	50.00	4.00	●
3191010	1.00	0.10	0.40	12.00	0.93	12.00	12.73	13.29	50.00	4.00	●
3191011	1.00	0.20	0.40	4.00	0.93	4.00	4.29	4.56	50.00	4.00	●
3191012	1.00	0.20	0.40	6.00	0.93	6.00	6.41	6.77	50.00	4.00	●
3191013	1.00	0.20	0.40	8.00	0.93	8.00	8.53	8.96	50.00	4.00	●
3191014	1.00	0.20	0.40	10.00	0.93	10.00	10.63	11.13	50.00	4.00	●
3191015	1.00	0.20	0.40	12.00	0.93	12.00	12.73	13.29	50.00	4.00	●
3191018	1.00	0.30	0.40	4.00	0.93	4.00	4.29	4.56	50.00	4.00	●
3191019	1.00	0.30	0.40	6.00	0.93	6.00	6.41	6.77	50.00	4.00	●
3191501	1.50	0.10	0.60	4.00	1.41	4.00	4.29	4.56	50.00	4.00	●
3191503	1.50	0.10	0.60	8.00	1.41	8.00	8.53	8.96	50.00	4.00	●
3191505	1.50	0.10	0.60	12.00	1.41	12.00	12.73	13.29	50.00	4.00	●
3191506	1.50	0.20	0.60	4.00	1.41	4.00	4.29	4.56	50.00	4.00	●
3191507	1.50	0.20	0.60	6.00	1.41	6.00	6.41	6.77	50.00	4.00	●
3191508	1.50	0.20	0.60	8.00	1.41	8.00	8.53	8.96	50.00	4.00	●
3192001	2.00	0.10	0.80	8.00	1.89	8.00	8.53	8.96	50.00	4.00	●
3192002	2.00	0.10	0.80	10.00	1.89	10.00	10.63	11.13	50.00	4.00	●
3192003	2.00	0.10	0.80	12.00	1.89	12.00	12.73	13.29	50.00	4.00	●
3192004	2.00	0.10	0.80	16.00	1.89	16.00	16.92	17.57	50.00	4.00	●
3192013	2.00	0.30	0.80	8.00	1.89	8.00	8.53	8.96	50.00	4.00	●
3192015	2.00	0.30	0.80	12.00	1.89	12.00	12.73	13.29	50.00	4.00	●
3192019	2.00	0.50	0.80	6.00	1.89	6.00	6.41	6.77	50.00	4.00	●
3192020	2.00	0.50	0.80	8.00	1.89	8.00	8.53	8.96	50.00	4.00	●
3192021	2.00	0.50	0.80	10.00	1.89	10.00	10.63	11.13	50.00	4.00	●
3192022	2.00	0.50	0.80	12.00	1.89	12.00	12.73	13.29	50.00	4.00	●
3193008	3.00	0.30	1.20	12.00	2.85	12.00	12.73	13.29	50.00	4.00	●

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	◎					

○ good ◎ best





## WXL-LN-EBD

List 3790, EXOCARB® WXL-LN-EBD, Long Neck, Rib Processing



CARBIDE	WXL	2 FLUTE	30°		SHANK h6	STUB	PACKED 1 PIECE
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Radius Tolerance	
0.1mm ≤ D ≤ 6mm	+/- 0.005mm



EDP Number	Dia. (mm)	Length of Cut (mm)	Neck Length (mm)	Neck Dia. (mm)	Overall Length (mm)	Shank Dia. (mm)
3110103	0.10	0.10	0.30	0.09	45.00	4.00
3110105	0.10	0.10	0.50	0.09	45.00	4.00
3110207	0.20	0.16	0.75	0.18	45.00	4.00
3110212	0.20	0.16	1.25	0.18	45.00	4.00
3110217	0.20	0.16	1.75	0.18	45.00	4.00
3110220	0.20	0.16	2.00	0.18	45.00	4.00
3110225	0.20	0.16	2.50	0.18	45.00	4.00
3110230	0.20	0.16	3.00	0.18	45.00	4.00
3110203	0.20	0.20	0.30	0.18	45.00	4.00
3110205	0.20	0.20	0.50	0.18	45.00	4.00
3110210	0.20	0.20	1.00	0.18	45.00	4.00
3110215	0.20	0.20	1.50	0.18	45.00	4.00
3110310	0.30	0.20	1.00	0.28	45.00	4.00
3110315	0.30	0.20	1.50	0.28	45.00	4.00
3110320	0.30	0.20	2.00	0.28	45.00	4.00
3110305	0.30	0.24	0.50	0.28	45.00	4.00
3110306	0.30	0.24	0.60	0.28	45.00	4.00
3110307	0.30	0.24	0.75	0.28	45.00	4.00
3110312	0.30	0.24	1.25	0.28	45.00	4.00
3110317	0.30	0.24	1.75	0.28	45.00	4.00
3110322	0.30	0.24	2.25	0.28	45.00	4.00
3110325	0.30	0.24	2.50	0.28	45.00	4.00
3110327	0.30	0.24	2.75	0.28	45.00	4.00
3110330	0.30	0.24	3.00	0.28	45.00	4.00
3110335	0.30	0.24	3.50	0.28	45.00	4.00
3110340	0.30	0.24	4.00	0.28	45.00	4.00
3110345	0.30	0.24	4.50	0.28	45.00	4.00
3110350	0.30	0.24	5.00	0.28	45.00	4.00
3110405	0.40	0.30	0.50	0.37	45.00	4.00
3110407	0.40	0.30	0.75	0.37	45.00	4.00
3110410	0.40	0.30	1.00	0.37	45.00	4.00
3110415	0.40	0.30	1.50	0.37	45.00	4.00
3110420	0.40	0.30	2.00	0.37	45.00	4.00
3110425	0.40	0.30	2.50	0.37	45.00	4.00
3110430	0.40	0.30	3.00	0.37	45.00	4.00
3110435	0.40	0.30	3.50	0.37	45.00	4.00
3110440	0.40	0.30	4.00	0.37	45.00	4.00
3110445	0.40	0.30	4.50	0.37	45.00	4.00
3110450	0.40	0.30	5.00	0.37	45.00	4.00
3110455	0.40	0.30	5.50	0.37	45.00	4.00
3110460	0.40	0.30	6.00	0.37	45.00	4.00
3110510	0.50	0.40	1.00	0.45	45.00	4.00
3110515	0.50	0.40	1.50	0.45	45.00	4.00
3110520	0.50	0.40	2.00	0.45	45.00	4.00
3110525	0.50	0.40	2.50	0.45	45.00	4.00
3110530	0.50	0.40	3.00	0.45	45.00	4.00
3110535	0.50	0.40	3.50	0.45	45.00	4.00
3110540	0.50	0.40	4.00	0.45	45.00	4.00
3110545	0.50	0.40	4.50	0.45	45.00	4.00
3110550	0.50	0.40	5.00	0.45	45.00	4.00
3110555	0.50	0.40	5.50	0.45	45.00	4.00

EDP Number	Dia. (mm)	Length of Cut (mm)	Neck Length (mm)	Neck Dia. (mm)	Overall Length (mm)	Shank Dia. (mm)
3110560	0.50	0.40	6.00	0.45	45.00	4.00
3110570	0.50	0.40	7.00	0.45	45.00	4.00
3110580	0.50	0.40	8.00	0.45	45.00	4.00
3110590	0.50	0.40	9.00	0.45	45.00	4.00
3110600	0.50	0.40	10.00	0.45	45.00	4.00
3110610	0.60	0.50	1.00	0.55	45.00	4.00
3110615	0.60	0.50	1.50	0.55	45.00	4.00
3110620	0.60	0.50	2.00	0.55	45.00	4.00
3110625	0.60	0.50	2.50	0.55	45.00	4.00
3110630	0.60	0.50	3.00	0.55	45.00	4.00
3110635	0.60	0.50	3.50	0.55	45.00	4.00
3110640	0.60	0.50	4.00	0.55	45.00	4.00
3110645	0.60	0.50	4.50	0.55	45.00	4.00
3110650	0.60	0.50	5.00	0.55	45.00	4.00
3110655	0.60	0.50	5.50	0.55	45.00	4.00
3110660	0.60	0.50	6.00	0.55	45.00	4.00
3110665	0.60	0.50	6.50	0.55	45.00	4.00
3110670	0.60	0.50	7.00	0.55	45.00	4.00
3110675	0.60	0.50	7.50	0.55	45.00	4.00
3110680	0.60	0.50	8.00	0.55	45.00	4.00
3110685	0.60	0.50	8.50	0.55	45.00	4.00
3110690	0.60	0.50	9.00	0.55	45.00	4.00
3110695	0.60	0.50	9.50	0.55	45.00	4.00
3110700	0.60	0.50	10.00	0.55	45.00	4.00
3110711	0.60	0.50	11.00	0.55	45.00	4.00
3110712	0.60	0.50	12.00	0.55	45.00	4.00
3110830	0.80	0.50	3.00	0.75	45.00	4.00
3110912	0.80	0.50	12.00	0.75	45.00	4.00
3110820	0.80	0.60	2.00	0.75	45.00	4.00
3110840	0.80	0.60	4.00	0.75	45.00	4.00
3110850	0.80	0.60	5.00	0.75	45.00	4.00
3110860	0.80	0.60	6.00	0.75	45.00	4.00
3110870	0.80	0.60	7.00	0.75	45.00	4.00
3110880	0.80	0.60	8.00	0.75	45.00	4.00
3110890	0.80	0.60	9.00	0.75	45.00	4.00
3110900	0.80	0.60	10.00	0.75	45.00	4.00
3111025	1.00	0.80	2.50	0.95	45.00	4.00
3111030	1.00	0.80	3.00	0.95	45.00	4.00
3111040	1.00	0.80	4.00	0.95	45.00	4.00
3111050	1.00	0.80	5.00	0.95	45.00	4.00
3111060	1.00	0.80	6.00	0.95	45.00	4.00
3111070	1.00	0.80	7.00	0.95	45.00	4.00
3111080	1.00	0.80	8.00	0.95	45.00	4.00
3111090	1.00	0.80	9.00	0.95	45.00	4.00
3111100	1.00	0.80	10.00	0.95	45.00	4.00
3111112	1.00	0.80	12.00	0.95	45.00	4.00
3111114	1.00	0.80	14.00	0.95	50.00	4.00
3111116	1.00	0.80	16.00	0.95	50.00	4.00
3111118	1.00	0.80	18.00	0.95	55.00	4.00
3111120	1.00	0.80	20.00	0.95	55.00	4.00
3111240	1.20	1.00	4.00	1.15	45.00	4.00

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



CONTINUED

Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○	○				

○ good ○ best



# MILLING

EXOCARB® WXL® - Premium Performance Carbide End Mills with OSG's Proprietary WXL® Coating

## WXL-LN-EBD (Continued)

List 3790, EXOCARB® WXL-LN-EBD, Long Neck, Rib Processing



CARBIDE	WXL	2 FLUTE	30°			SHANK h6	STUB	PACKED 1 PIECE
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Radius Tolerance	
0.1mm ≤ D ≤ 6mm	+/- 0.005mm



EDP Number	Dia.	Length of Cut	Neck Length	Neck Dia.	Overall Length	Shank Dia.	
							D (mm)
3111260	●	1.20	1.00	6.00	1.15	45.00	4.00
3111280	●	1.20	1.00	8.00	1.15	45.00	4.00
3111300	●	1.20	1.00	10.00	1.15	45.00	4.00
3111312	●	1.20	1.00	12.00	1.15	45.00	4.00
3111314	●	1.20	1.00	14.00	1.15	50.00	4.00
3111316	●	1.20	1.00	16.00	1.15	50.00	4.00
3111318	●	1.20	1.00	18.00	1.15	55.00	4.00
3111320	●	1.20	1.00	20.00	1.15	60.00	4.00
3111324	●	1.20	1.00	24.00	1.15	60.00	4.00
3111480	●	1.40	1.10	8.00	1.35	45.00	4.00
3111512	●	1.40	1.10	12.00	1.35	45.00	4.00
3111516	●	1.40	1.10	16.00	1.35	50.00	4.00
3111530	●	1.50	1.20	3.00	1.45	45.00	4.00
3111540	●	1.50	1.20	4.00	1.45	45.00	4.00
3111560	●	1.50	1.20	6.00	1.45	45.00	4.00
3111580	●	1.50	1.20	8.00	1.45	45.00	4.00
3111600	●	1.50	1.20	10.00	1.45	45.00	4.00
3111612	●	1.50	1.20	12.00	1.45	45.00	4.00
3111614	●	1.50	1.20	14.00	1.45	50.00	4.00
3111616	●	1.50	1.20	16.00	1.45	55.00	4.00
3111618	●	1.50	1.20	18.00	1.45	55.00	4.00
3111620	●	1.50	1.20	20.00	1.45	55.00	4.00
3111622	●	1.50	1.20	22.00	1.45	55.00	4.00
3111630	●	1.50	1.20	30.00	1.45	65.00	4.00
3111640	●	1.60	1.30	4.00	1.55	45.00	4.00
3111680	●	1.60	1.30	8.00	1.55	45.00	4.00
3111712	●	1.60	1.30	12.00	1.55	45.00	4.00
3111716	●	1.60	1.30	16.00	1.55	50.00	4.00
3111720	●	1.60	1.30	20.00	1.55	55.00	4.00
3111880	●	1.80	1.40	8.00	1.75	45.00	4.00
3111912	●	1.80	1.40	12.00	1.75	45.00	4.00
3111916	●	1.80	1.40	16.00	1.75	50.00	4.00
3111920	●	1.80	1.40	20.00	1.75	55.00	4.00
3112030	●	2.00	1.60	3.00	1.95	45.00	4.00
3112040	●	2.00	1.60	4.00	1.95	45.00	4.00
3112060	●	2.00	1.60	6.00	1.95	45.00	4.00
3112080	●	2.00	1.60	8.00	1.95	45.00	4.00
3112100	●	2.00	1.60	10.00	1.95	45.00	4.00
3112112	●	2.00	1.60	12.00	1.95	45.00	4.00
3112114	●	2.00	1.60	14.00	1.95	50.00	4.00
3112116	●	2.00	1.60	16.00	1.95	50.00	4.00
3112118	●	2.00	1.60	18.00	1.95	55.00	4.00
3112120	●	2.00	1.60	20.00	1.95	55.00	4.00
3112122	●	2.00	1.60	22.00	1.95	60.00	4.00
3112125	●	2.00	1.60	25.00	1.95	65.00	4.00
3112130	●	2.00	1.60	30.00	1.95	70.00	4.00
3112135	●	2.00	1.60	35.00	1.95	75.00	4.00
3112140	●	2.00	1.60	40.00	1.95	80.00	4.00
3112560	●	2.50	2.00	6.00	2.45	45.00	4.00
3112600	●	2.50	2.00	10.00	2.45	50.00	4.00
3112615	●	2.50	2.00	15.00	2.45	55.00	4.00
3112620	●	2.50	2.00	20.00	2.45	60.00	4.00
3112625	●	2.50	2.00	25.00	2.45	65.00	4.00

EDP Number	Dia.	Length of Cut	Neck Length	Neck Dia.	Overall Length	Shank Dia.	
							D (mm)
3112630	●	2.50	2.00	30.00	2.45	70.00	4.00
3112635	●	2.50	2.00	35.00	2.45	70.00	4.00
3123060	●	3.00	2.40	6.00	2.85	50.00	6.00
3123080	●	3.00	2.40	8.00	2.85	50.00	6.00
3123100	●	3.00	2.40	10.00	2.85	50.00	6.00
3123112	●	3.00	2.40	12.00	2.85	55.00	6.00
3123114	●	3.00	2.40	14.00	2.85	55.00	6.00
3123115	●	3.00	2.40	15.00	2.85	55.00	6.00
3123116	●	3.00	2.40	16.00	2.85	55.00	6.00
3123120	●	3.00	2.40	20.00	2.85	60.00	6.00
3123125	●	3.00	2.40	25.00	2.85	65.00	6.00
3123130	●	3.00	2.40	30.00	2.85	70.00	6.00
3123135	●	3.00	2.40	35.00	2.85	80.00	6.00
3123140	●	3.00	2.40	40.00	2.85	85.00	6.00
3123600	●	3.50	2.80	10.00	3.35	60.00	6.00
3123615	●	3.50	2.80	15.00	3.35	60.00	6.00
3123620	●	3.50	2.80	20.00	3.35	65.00	6.00
3123625	●	3.50	2.80	25.00	3.35	65.00	6.00
3123630	●	3.50	2.80	30.00	3.35	70.00	6.00
3123635	●	3.50	2.80	35.00	3.35	80.00	6.00
3123640	●	3.50	2.80	40.00	3.35	90.00	6.00
3123645	●	3.50	2.80	45.00	3.35	90.00	6.00
3124080	●	4.00	3.20	8.00	3.85	60.00	6.00
3124100	●	4.00	3.20	10.00	3.85	60.00	6.00
3124112	●	4.00	3.20	12.00	3.85	60.00	6.00
3124114	●	4.00	3.20	14.00	3.85	60.00	6.00
3124115	●	4.00	3.20	15.00	3.85	60.00	6.00
3124116	●	4.00	3.20	16.00	3.85	60.00	6.00
3124120	●	4.00	3.20	20.00	3.85	65.00	6.00
3124125	●	4.00	3.20	25.00	3.85	70.00	6.00
3124130	●	4.00	3.20	30.00	3.85	80.00	6.00
3124135	●	4.00	3.20	35.00	3.85	80.00	6.00
3124140	●	4.00	3.20	40.00	3.85	90.00	6.00
3124145	●	4.00	3.20	45.00	3.85	90.00	6.00
3124150	●	4.00	3.20	50.00	3.85	100.00	6.00
3125120	●	5.00	4.00	20.00	4.85	70.00	6.00
3125125	●	5.00	4.00	25.00	4.85	70.00	6.00
3125130	●	5.00	4.00	30.00	4.85	80.00	6.00
3125135	●	5.00	4.00	35.00	4.85	80.00	6.00
3125100	●	5.00	5.00	10.00	4.85	65.00	6.00
3125115	●	5.00	5.00	15.00	4.85	70.00	6.00
3125140	●	5.00	5.00	40.00	4.85	90.00	6.00
3125145	●	5.00	5.00	45.00	4.85	100.00	6.00
3125150	●	5.00	5.00	50.00	4.85	100.00	6.00
3126130	●	6.00	4.80	30.00	5.85	80.00	6.00
3126140	●	6.00	4.80	40.00	5.85	90.00	6.00
3126150	●	6.00	4.80	50.00	5.85	120.00	6.00
3126100	●	6.00	6.00	10.00	5.85	60.00	6.00
3126120	●	6.00	6.00	20.00	5.85	70.00	6.00
3126125	●	6.00	6.00	25.00	5.85	70.00	6.00
3126135	●	6.00	6.00	35.00	5.85	80.00	6.00
3126145	●	6.00	6.00	45.00	5.85	100.00	6.00

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○	○				

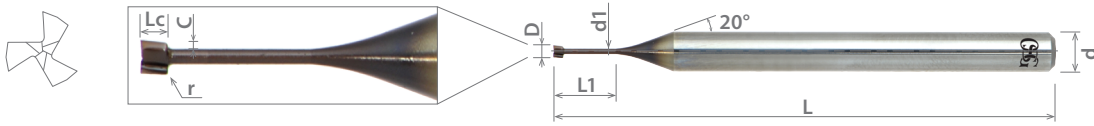
○ good ● best



## EXO-MG-TSC

List 9152, 3 Flute, T-Slot for Undercut 90° angle

CARBIDE EXO<sup>®</sup> SHANK h6



Shank diameter 4mm

Units: mm

EDP Number	Mill Diameter	Radius	Overall Length	Length of Cut	Neck Length	Neck Dia.	Width of Cut	Shank Diameter	Status
	D	r	L	Lc	L1	d1	C	d	
W1700835	1.4	0.1	50	1	6	0.6	0.30	4	●
W1701727	1.6	0.1	50	1.5	6	0.9	0.25	4	●

● Stocked ○ Available Upon Request; MOQ May Apply ▲ Globally Stocked



Cobalt Chrome	Titanium	Zirconium	Wax/PMMA	PEEK	Hybrid Ceramic/Composite	Glass Ceramics
○	○	○	○	○		

○ good ◎ best





*shaping your dreams*

 **Safe use of cutting tools**

- Use safety cover, safety glasses and safety shoes during operation.
- Do not touch cutting edges with bare hands.
- Do not touch cutting chips with bare hands. Chips will be hot after cutting.
- Stop cutting when the tool becomes dull.
- Stop cutting operation immediately if you hear any abnormal cutting sounds.
- Do not modify tools.
- Please use appropriate tools for the operation. Check dimensions to ensure proper selection.

**osgtool.com**

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