



The A Brand

The Tooling Master Class



The A Brand Story

The joy of delivering new values

The A Brand represents a new evolution in cutting tool technology. With a commitment to only the best, the A Brand emanates innovations essential for shaping the future of global manufacturing. The A Brand is not only a premium tooling brand, it also represents the quality assurance OSG guarantees to each and every customer. The A Brand is composed of OSG's latest high performance threading, drilling and milling tool innovations. Developed with attention to the finest details, manufacturers will experience the level of quality, reliability and satisfaction that can only be delivered by the A Brand tooling master class.

Advanced tool qualities have been incorporated into the A Brand products, including a versatility that enables a wide range of processing in different work materials, an excellent capability to perform difficult processing tasks, and high efficiency that leads to shortened production time and cost savings. Expectations have risen that the A Brand will bring innovations into the manufacturing field, and pass on OSG's technologies from today to the future. To better understand the concept of the A Brand, interviews were conducted with OSG experts who have devoted their manufacturing careers to the development of A Brand products. They spoke enthusiastically about how their passions underpinned the development process.



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The A Brand *The Tooling Master Class*

A-TAP LINE-UP

The A Brand is not only a premium tooling brand, it also represents the quality assurance OSG guarantees to each and every customer. You will experience a level of quality, reliability and satisfaction that can only be delivered by the A Brand tooling master class.

Advanced performance A-Taps are engineered to meet the highest demands and expectations in a wide range of applications.

A-TAP



A Brand A-SFT (SFT, LT-SFT, OIL-SFT) *Advanced Performance Spiral Flute Taps*



A Brand A-POT (POT, LT-POT, OIL-POT) *Advanced Performance Spiral Point Taps*



A Brand A-PIPE (NPT, LT-NPT, BSPP, BSPT, NPS) *Advanced Performance Pipe Taps*



A Brand A-CSF & A-CHT *Advanced Performance Carbide Coolant-Through Taps*



A Brand AT-1 (NPT, NPTF) *Advanced Performance One Pass Thread Mill*



A Brand AT-2 *Advanced Performance End-Cutting Thread Mill for High-Hardness Steels*



A Brand AT-2 R-SPEC *Advanced Performance End-Cutting Thread Mill for Non-ferrous Materials*



A Brand A-SFT

Advanced Performance Spiral Flute Taps



A Brand A-SFT

The A Brand A-SFT is an all-purpose tap series designed to excel in a wide variety of materials. Now available in DIN length, long shank, and coolant-through; the opportunities are endless. Made from powdered metal HSS and featuring OSG's proprietary V coating to achieve excellent wear resistance. A-SFT, with a unique variable helix flute design, reduces cutting forces and encourages stable chip evacuation.



Features & Benefits

- **OSG's proprietary V coating** for prolonged tool life.
- **Powder metallurgy HSS** for increased wear resistance.
- **Sharp cutting edge** to stabilize chip shape.
- **Variable helix flute** to accelerate and control chip evacuation.

List Numbers

Size Range

16500 - A Brand A-SFT (Metric)	M1.4-M56
16505 - A Brand A-SFT (Inch)	No. 4-2"
16520 - A Brand A-LT-SFT (Metric, Long Shank)	M3-M24
16525 - A Brand A-LT-SFT (Inch, Long Shank)	No. 4-1"
16540 - A Brand A-OIL-SFT (Metric, Coolant-Through)	M6-M56
16545 - A Brand A-OIL-SFT (Inch, Coolant-Through)	1/4"-2"

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	⊙
P	Medium Carbon Steel : 1035, 1045	⊙
P	High Carbon Steel : 1065	⊙
P	Alloy Steels : 4140, 4340	⊙
P	Die Steels	○
M	Stainless Steels : 300	⊙
M	Stainless Steels : 400	⊙
M	Stainless Steels : 17-4PH	⊙
K	Cast Iron	○
N	Aluminum : 6061, 7075	○
N	Aluminum : Casting	○
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	
H	Hardened Steels : ~35 HRC	⊙
H	Hardened Steels : 35-45 HRC	
H	Hardened Steels : 45-50 HRC	
H	Hardened Steels : 50-70 HRC	

○ good ⊙ best

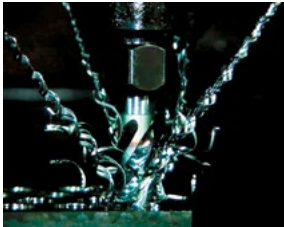
For more information scan the QR code to the right and visit: osgtool.com/a-sft



Chip Evacuation

Excellent Chip Evacuation in Various Materials

Most tapping troubles are caused by unstable chip evacuation. The A-Tap series resolves such troubles and is applicable to a wide range of work materials and cutting conditions.



Conventional Tap



A-SFT

Large Hole Threading

1045 Carbon Steel and 304 Stainless Steel

The use of water-soluble coolant is possible even in difficult to machine materials such as carbon steels and stainless steels, which could not be achieved with conventional taps.

Tool	A-SFT	Conventional
Drill Size	ØM36 x 4	
Work Material	1045 Carbon Steel 304 Stainless Steel	
Pre-Drilled Hole	Ø32mm x 70mm (Blind)	
Tapping Depth	54mm (1.5D)	
Cutting Speed	23 SFM (62 RPM)	
Coolant	Water-soluble Chlorine-Free (20%)	
Machine	Horizontal Machining Center	

Visual Reference of Internal Threads.

(Results may vary based on machining conditions.)



A Brand A-POT

Advanced Performance Spiral Point Taps



A Brand A-POT

The A Brand A-POT is an all-purpose tap series designed to excel in a wide variety of materials. Now available in DIN length, long shank, and coolant-through the opportunities are endless. Made from powdered metal HSS and featuring OSG's patented V coating to achieve excellent wear resistance. The A-POT series has unique geometry that enables greater chip control to produce tightly compacted and controlled chips for easy evacuation from the hole.



Features & Benefits

- **OSG's proprietary V coating** to improve wear resistance and extend tool life.
- **Powder metallurgy HSS** for increased wear resistance.
- **Sharp cutting edge** that stabilizes chip shape.

List Numbers

Size Range

16510 - A Brand A-POT (Metric)	M1.4-M24
16515 - A Brand A-POT (Inch)	No.2-1"
16530 - A Brand A-LT-POT (Metric, Long Shank)	M3-M24
16535 - A Brand A-LT-POT (Inch, Long Shank)	No. 4-1"
16550 - A Brand A-OIL-POT (Metric, Coolant-Through)	M6-M24
16555 - A Brand A-OIL-POT (Inch, Coolant-Through)	1/4"-1"

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	⊙
P	Medium Carbon Steel : 1035, 1045	⊙
P	High Carbon Steel : 1065	⊙
P	Alloy Steels : 4140, 4340	⊙
P	Die Steels	○
M	Stainless Steels : 300	⊙
M	Stainless Steels : 400	⊙
M	Stainless Steels : 17-4PH	⊙
K	Cast Iron	○
N	Aluminum : 6061, 7075	○
N	Aluminum : Casting	○
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	
H	Hardened Steels : ~35 HRC	⊙
H	Hardened Steels : 35-45 HRC	
H	Hardened Steels : 45-50 HRC	
H	Hardened Steels : 50-70 HRC	

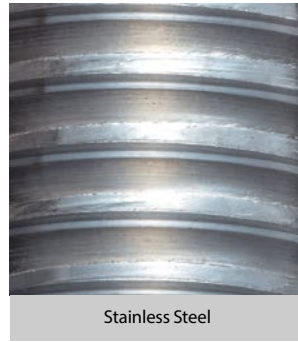
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For more information scan the QR code to the right and visit: osgtool.com/a-pot



Superior Threads

No Galling of the Work Material

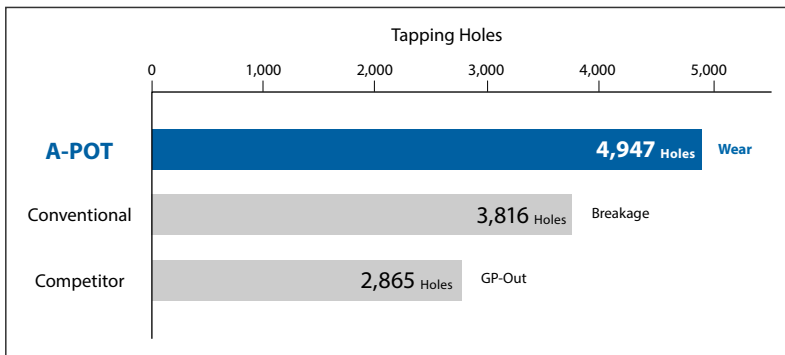


Maximize the Performance of Your Machine

Carbon Steel (1045)

The A-POT greatly outperformed the competitor and conventional taps.

Tool	A-POT	Conventional	Competitor
Drill Size	ØM8 x 1.25		
Work Material	1050 Steel		
Pre-Drilled Hole	Ø6.8mm x 16mm (Through)		
Tapping Depth	16mm (2D)		
Cutting Speed	98 SFM (1,190 RPM)		
Coolant	Water-soluble Chlorine-Free (10%)		
Machine	Horizontal Machining Center (Synchronized)		



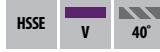
A Brand A-PIPE

Advanced Performance Pipe Taps



A Brand A-Pipe

With an expansive size offering, the new A-Pipe Tap has enhanced cutting geometry with proprietary V Coating for extended tool life that performs exceptionally in a wide range of materials.



Features & Benefits

- **OSG's proprietary V coating** for prolonged tool life.
- **HSSE material** for increased wear resistance.
- **Enhanced cutting geometry** for improved performance in a wide range of materials.

List Numbers

Size Range

16570 - A Brand A-NPT (Inch)	1/16"-1"
16575 - A Brand A-LT-NPT (Inch, Long Shank)	1/16"-1"
16580 - A Brand A-BSPP (Inch)	1/8"-1"
16585 - A Brand A-BSPT (Inch)	1/8"-1"
16590 - A Brand A-NPS (Inch)	1/16"-1"

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	⊙
P	Medium Carbon Steel : 1035, 1045	⊙
P	High Carbon Steel : 1065	⊙
P	Alloy Steels : 4140, 4340	⊙
P	Die Steels	○
M	Stainless Steels : 300	○
M	Stainless Steels : 400	○
M	Stainless Steels : 17-4PH	○
K	Cast Iron	○
N	Aluminum : 6061, 7075	○
N	Aluminum : Casting	⊙
S	Nickel Alloy : Inconel	○
S	Titanium : 6AL4V (30HRC)	○
H	Hardened Steels : ~35 HRC	⊙
H	Hardened Steels : 35-45 HRC	
H	Hardened Steels : 45-50 HRC	
H	Hardened Steels : 50-70 HRC	

○ good ⊙ best

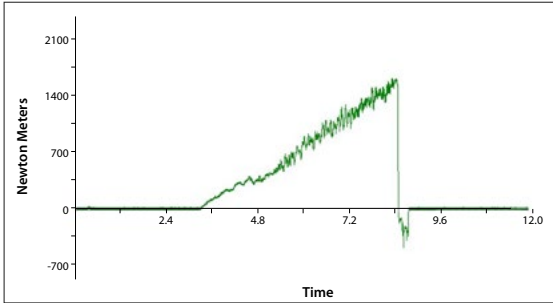
For more information scan the QR code to the right and visit: osgtool.com/apipe



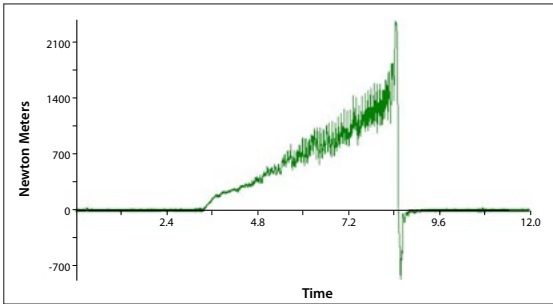
Stabilized Cutting Torque

Comparison

The A Brand A-NPT tap demonstrates more consistent torque while producing threads than the competitor, resulting in better tool life and thread quality.



A-NPT



Competitor

Processing with Taper Pipe Taps

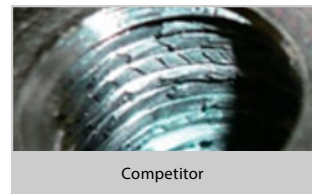
A36 Steel

The A-Pipe taps are able to achieve stable performance beyond 100 holes while the competitor's tool failed to successfully process a single hole.

Tool	A-NPT	Competitor
Tool Size	PT 1/8-28 2.5P	
Work Material	A36 Steel	
Pre-Drilled Hole	Ø0.32" x 0.62" (Through)	
Gage Plane	0.51"	
Cutting Speed	23 SFM (272 RPM)	
Coolant	Water-soluble Chlorine-Free (10%)	
Machine	Horizontal Machining Center	



A-NPT



Competitor

A Brand A-CSF & A-CHT

Advanced Performance Carbide Coolant-Through Taps



A Brand A-CSF & A-CHT

The A Brand A-CSF and A-CHT offer an ultra-fine grain carbide substrate and a unique flute geometry which excels in cast iron and non-ferrous materials. The special coolant hole design allows 1.3 times more coolant flow to help aid in chip evacuation and cooling at the cutting edge to extend tool life.



Features & Benefits

- **Large oil hole** for excellent coolant flow.
- **Ultra-fine grain carbide** for high wear resistance and toughness.

List Numbers

16600 - A Brand A-CSF (Metric)
16605 - A Brand A-CSF (Inch)
16610 - A Brand A-CHT (Metric)
16615 - A Brand A-CHT (Inch)

Size Range

M5-M12
1/4"-1/2"
M5-M16
#12-5/8"

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	
P	Medium Carbon Steel : 1035, 1045	
P	High Carbon Steel : 1065	
P	Alloy Steels : 4140, 4340	
P	Die Steels	
M	Stainless Steels : 300	
M	Stainless Steels : 400	
M	Stainless Steels : 17-4PH	
K	Cast Iron	⊙
N	Aluminum : 6061, 7075	⊙
N	Aluminum : Casting	⊙
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	
H	Hardened Steels : ~35 HRC	
H	Hardened Steels : 35-45 HRC	
H	Hardened Steels : 45-50 HRC	
H	Hardened Steels : 50-70 HRC	

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For more information scan the QR code to the right and visit: osgtool.com/a-csf

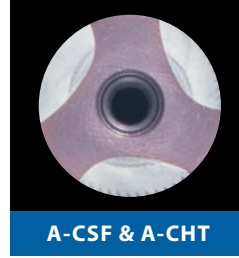


A Brand A-CSF & A-CHT

Advanced Performance Carbide Coolant-Through Taps

Excellent Coolant Flow

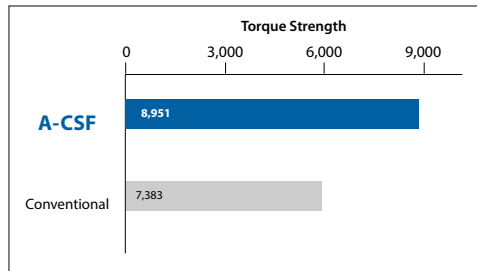
Larger Oil Hole Design for 1.3 Times More Coolant Flow



Ideal for Cast Iron

Rigid Design Prevents Tool Breakage

Tool	A-CSF
Size	M10 x 1.5
Drill Hole Size	Ø 8.5 x 20mm (Blind)
Work Material	Pearlitic Cast Iron
Tapping Depth	15mm (1.5xD)
Cutting Speed	40 SFM (640 RPM)
Coolant	Water-Soluble (Internal)
Machine	Vertical Machining Center (Synchronized)

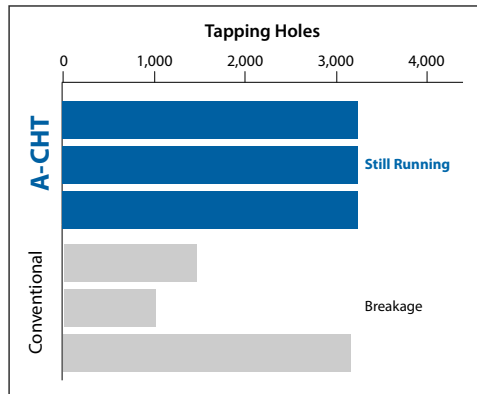


*Cutting Torque 650N-cm

Stable and Consistent Performance

Stable Machining in Ductile Cast Iron

Tool	A-CHT	Conventional
Size	ØM6 x 1	
Drill Hole Size	Ø5mm x 15mm (Blind)	
Work Material	Ductile Cast Iron	
Tapping Depth	12mm (2xD)	
Cutting Speed	100 SFM (1,600 RPM)	
Coolant	Water Soluble Chlorine-Free (10%) (Internal)	
Machine	Horizontal Machining Center (Synchronized)	



A Brand AT-1

Advanced Performance One Pass Thread Mill

A Brand AT-1

The A Brand AT-1, is designed with a left-hand helix and starts cutting from the shank side, reducing deflection, preventing bending, thus allowing for 1-pass cutting and reducing overall cutting time. Along with OSG's patented EgiAs coating, it also has unequal spacing/variable lead flute which reduces vibration for better thread quality.



Features & Benefits

- **OSG's EgiAs coating** for exceptional wear resistance and longer tool life.
- **Right-hand cut and left-hand helix geometry** to prevent bending/deflection.
- **Unequal spacing/variable lead flute** for reduced vibration.

List Numbers

Size Range

16620 - A Brand AT-1 (Inch)	1/4"-1"
16625 - A Brand AT-1 (Metric)	M6-M24
16630 - A Brand AT-1 (NPT)	1/16"-2"
16631 - A Brand AT-1 (NPTF)	1/16"-2"

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	⊙
P	Medium Carbon Steel : 1035, 1045	⊙
P	High Carbon Steel : 1065	⊙
P	Alloy Steels : 4140, 4340	⊙
P	Die Steels	
M	Stainless Steels : 300	⊙
M	Stainless Steels : 400	○
M	Stainless Steels : 17-4PH	○
K	Cast Iron	⊙
N	Aluminum : 6061, 7075	⊙
N	Aluminum : Casting	⊙
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	
H	Hardened Steels : ~35 HRC	⊙
H	Hardened Steels : 35-45 HRC	⊙
H	Hardened Steels : 45-50 HRC	
H	Hardened Steels : 50-70 HRC	

○ good ⊙ best

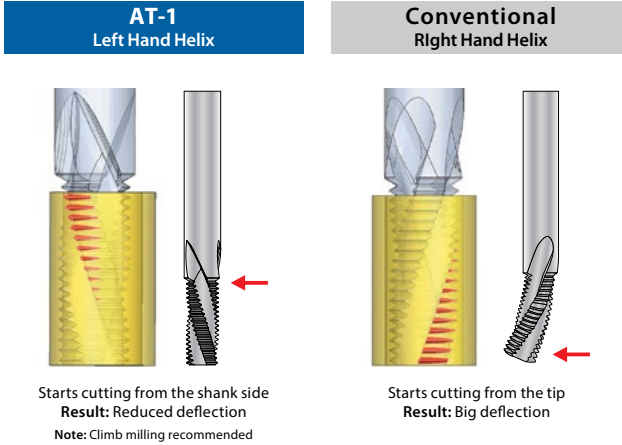
For more information scan the QR code to the right and visit: osgtool.com/at-1



1-Pass Cutting

Left Hand Helix Reduces Deflection for 1-Pass Cutting

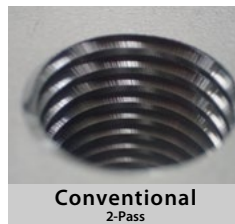
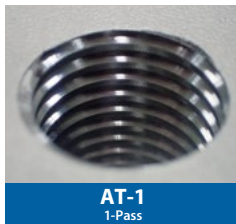
The AT-1 is designed with a left hand helix and starts cutting from the shank side, reducing deflection, preventing bending, thus allowing for 1-pass cutting and reducing overall cutting time.



Superior Internal Threads

Superior Threads Made in Just 1-Pass

Tool	AT-1 (List 16620)	Conventional
Size	Ø19.7mm • 54mm Length of Cut	
Thread Size	M24 x 3	
Work Material	304 Stainless Steel	
Tapping Depth	45mm (full depth)	
Cutting Speed	131 SFM (646 RPM)	
Feed	5.9 IPM (0.0016 IPT)	
Number of Passes	1	2
Coolant	Water-Soluble	
Machine	Horizontal Machining Center	



A Brand AT-2

Advanced Performance End Cutting Thread Mill for High-Hardness Steel

A Brand AT-2

The A Brand AT-2 is OSG's newest thread mill with an end-cutting edge for high hardness steels is ideal for highly difficult applications. The risk of sudden tool breakage can be minimized by breaking chips into small and manageable pieces and evacuating them smoothly. Since no pilot hole is required, process integration and the risk of breakage can be avoided.



Features & Benefits

- **Newly developed DUOREY coating** enables superior heat resistance and high toughness optimized for high-hardness steel milling!
- **Special cutting edge shape** controls tool deflection.
- **Left-hand cut configuration** enables climb milling to prolong tool life.
- **Added roughing teeth** to distribute the load.
- **No pilot hole is required** Helical drilling + threading can be done simultaneously.

List Numbers

Size Range

16645 - A Brand AT-2 (Inch)
16640 - A Brand AT-2 (Metric)

#8-1/2"
M3-M12

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	○
P	Medium Carbon Steel : 1035, 1045	⊗
P	High Carbon Steel : 1065	⊗
P	Alloy Steels : 4140, 4340	⊗
P	Die Steels	⊗
M	Stainless Steels : 300	○
M	Stainless Steels : 400	○
M	Stainless Steels : 17-4PH	⊗
K	Cast Iron	⊗
N	Aluminum : 6061, 7075	○
N	Aluminum : Casting	○
S	Nickel Alloy : Inconel	○
S	Titanium : 6AL4V (30HRC)	○
H	Hardened Steels : ~35 HRC	⊗
H	Hardened Steels : 35-45 HRC	⊗
H	Hardened Steels : 45-50 HRC	⊗
H	Hardened Steels : 50-70 HRC	⊗

○ good ⊗ best

For more information scan the QR code to the right and visit: osgtool.com/at-2

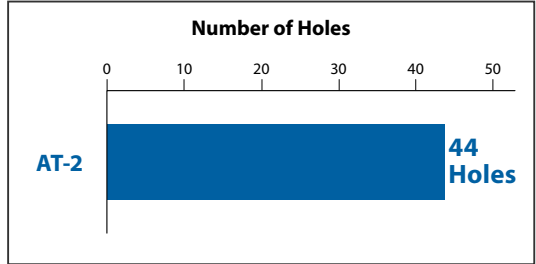


Remarkable Durability in 65 HRC Material

M2 High Speed Steel (65 HRC)

AT-2 demonstrates outstanding durability by cutting with air-blow.

Size	Ø 4 x 10 P0.8
Material	M2 High Speed Steel (65 HRC)
Speed	150 SFM (3581 RPM)
Feed	1.14 IPM (0.0004 IPT)
Thread Size	M5 x 0.8
Depth	8mm (2D)
Coolant	Air blow
Machine	HMC

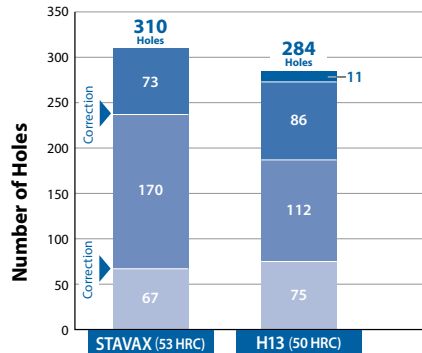


Excellent Durability in STAVAX

STAVAX (53 HRC) and H13 (50HRC)

Even in difficult stainless steels AT-2 provides excellent tool life.

Size	Ø 7.5 x 20 P1.5	
Material	STAVAX (53 HRC)	H13 (50 HRC)
Speed	180 SFM (2,331 RPM)	
Feed	3.50 IPM (0.0015 IPT)	
Thread Size	M10 x 1.5	
Depth	18mm (1.8D)	
Coolant	Air Blow	
Machine	HMC (BT40)	

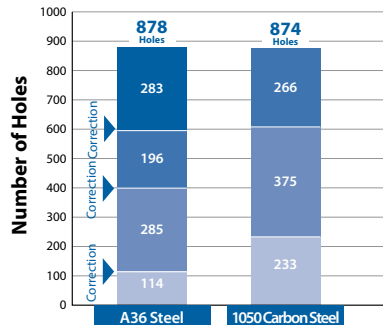


Stable Performance Even in General Steels

STAVAX (53 HRC) and H13 (50 HRC)

Since there is no cutting chip trouble, it is effective for avoiding the risk of tool breakage. Processing consolidation is also made possible.

Size	Ø 3.1 x 8 P0.7	
Material	A36 Steel	1050 Carbon Steel
Speed	150 SFM (3581 RPM)	150 SFM (1910 RPM)
Feed	2.60 IPM (0.0009 IPT)	2.87 IPM (0.0015 IPT)
Thread Size	M4 x 0.7	
Depth	7mm (1.75D)	
Coolant	Water soluble	
Machine	VMC	



A Brand AT-2 R-SPEC

Advanced Performance End-Cutting Thread Mill for Non-Ferrous Materials

A Brand AT-2 R-SPEC

The OSG A Brand AT-2 R-SPEC high-efficiency thread mill is engineered to dramatically reduce machining time in non-ferrous metal applications such as aluminum alloy by its continuous helical cutting ability, which combines drilling and threading into a single process. The AT-2 R-SPEC is also effective as a countermeasure against cutting position misalignment in cast holes.



Features & Benefits

- **DLC-IGUSS Coating** prevents welding on the cutting edge.
- **End Cutting Edge** Helical drilling and threading can be done simultaneously.
- **Unique Cutting Edge Shape** prevents deflection of tool.
- **2-Flute** for wide chip room.
- **Left-Hand Cut** results in long tool life by climb milling.

List Numbers

Size Range

16647 - A Brand AT-2 R-SPEC (Inch)
16642 - A Brand AT-2 R-SPEC (Metric)

#4-1/2"
M3-M12

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	
P	Medium Carbon Steel : 1035, 1045	
P	High Carbon Steel : 1065	
P	Alloy Steels : 4140, 4340	
P	Die Steels	
M	Stainless Steels : 300	
M	Stainless Steels : 400	
M	Stainless Steels : 17-4PH	
K	Cast Iron	
N	Aluminum : 6061, 7075	⊙
N	Aluminum : Casting	⊙
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	
H	Hardened Steels : ~35 HRC	
H	Hardened Steels : 35-45 HRC	
H	Hardened Steels : 45-50 HRC	
H	Hardened Steels : 50-70 HRC	

○ good ⊙ best

For more information scan the QR code to the right and visit: osgtool.com/at-2-r-spec



A Brand AT-2 R-SPEC

Advanced Performance End-Cutting Thread Mill for Non-Ferrous Materials

Cycle Time Reduction Against Drill & Tap

ADC12 Aluminum Alloy

Tool	AT-2 R-SPEC	ADO-3D	A-SFT
Size	M6 x 1.0	5.0mm	M6 x 1.0
Material	ADC12 Aluminum Alloy		
Speed	525 SFM	230 SFM	62 SFM
Feed	0.0138 IPT	0.0067 IPR	Tapping
Depth	12mm Threading Depth		
Coolant	Water Soluble		
Machine	BT40 Horizontal		
Total Holes	13 Hole Cycle		
Cycle Time	62.5s	93.3s	



71m/min 0.17 mm/rev
(4,520 min-1 768 mm/min)



18.8 m/min
(1,000 min-1)

**30.8s
Reduction**



160 m/min 0.35 mm/t
(11,072 min-1 1,808 mm/min)

93.3s

Including 1 ATC

62.5s

Threading in Aluminum with Air Blow

Aluminum Alloy (AlMgSi0.5)

AT-2 R-SPEC can be used with air blow if there is a pre-hole.

	Case 1	Case 2
Thread size	M6 x 1	M8 x 1.25
Thread length	0.3150"	0.5118"
Drill depth	0.1969"	0.2638"
Machine	HSK 63 vertical MC (HERMLE)	
Coolant	Air Blow	
Work material	Aluminum Alloy (AlMgSi0.5)	
Cutting speed	722 SFM	
Feed rate	0.0049 IPT	
Cutting time	3.0 s	6.7 s



AT-2 R-SPEC after 100 Holes

The A Brand *The Tooling Master Class*

A-DRILL LINE-UP

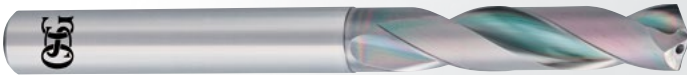
The A Brand is not only a premium tooling brand, it also represents the quality assurance OSG guarantees to each and every customer. You will experience a level of quality, reliability and satisfaction that can only be delivered by the A Brand tooling master class.

Advance performance A-Drills are engineered for increased productivity in a wide variety of materials.

A-DRILL



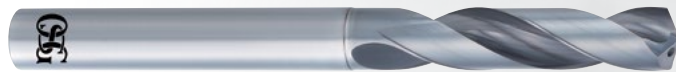
A Brand AD (2D, 4D) *Advanced Performance Carbide Drills*



A Brand ADO (3D-50D) *Advanced Performance Coolant-Through Carbide Drills*



A Brand ADO-MICRO (2D, 5D, 12D, 20D, 30D) *Advanced Performance Carbide Micro Drills*



A Brand ADO-SUS (3D, 5D, 8D) *Advanced Performance Coolant-Through Carbide Drills*



A Brand ADO-TRS (3D, 5D) *Advanced Performance High Feed 3-Flute Carbide Drills*



A Brand ADF (ADF 2D, ADF-LS 2D, ADFO 3D) *Advanced Performance Flat Drills*



A Brand AD-LDS *Advanced Performance Spot Drills*



A Brand AD

Advanced Performance Carbide Drills



A Brand AD

The A Brand AD drill series is OSG's premium line of solid carbide high performance drills. New wavy point edge form creates sharp cutting action for reduced thrust forces, while our proprietary EgiAs coating provides drastically higher hardness and heat resistance, enabling higher drilling speeds and incredible tool life.



Features & Benefits

- **OSG's proprietary EgiAs coating** provides higher coating oxidation temperatures and hardness which dramatically improves wear resistance.
- **Ultra-fine micrograin carbide** for more wear resistance and better coating adhesion properties for longer tool life.
- **Wavy form cutting edge design** for sharper cutting action reduces thrust forces and produces smaller chips for easy hole processing.

List Numbers

6300 - A Brand AD (2D)
6310 - A Brand AD (4D)

Size Range

2mm-20mm, 1/8"-3/4"
2mm-20mm, 1/8"-3/4"

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	⊙
P	Medium Carbon Steel : 1035, 1045	⊙
P	High Carbon Steel : 1065	⊙
P	Alloy Steels : 4140, 4340	○
P	Die Steels	○
M	Stainless Steels : 300	
M	Stainless Steels : 400	
M	Stainless Steels : 17-4PH	
K	Cast Iron	⊙
N	Aluminum : 6061, 7075	
N	Aluminum : Casting	
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	
H	Hardened Steels : ~35 HRC	○
H	Hardened Steels : 35-45 HRC	
H	Hardened Steels : 45-50 HRC	
H	Hardened Steels : 50-70 HRC	

○ good ⊙ best

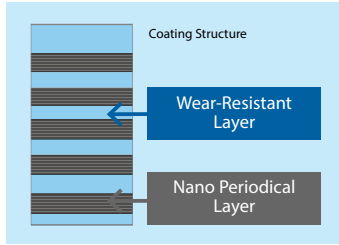
For more information scan the QR code to the right and visit: osgtool.com/ad



EgiAs Coating

Exceptional Wear Resistance & Toughness

Constructed with extreme toughness, high wear and heat resistance characteristics to ensure stable and consistent tool life. Suppresses friction with the wear resistance layer; prevents breakage with the nano periodical layer.



Coating Color	Coating Structure	Hardness (Hv)	Oxidation Temperature (°C)	Heat Resistance	Adhesion Strength	Wear Resistance	Welding Resistance	Toughness
Iridescent Color	Periodic Nano-layer and wear resistance layer	3,200	1,100	⊙	⊙	⊙	⊙	⊙

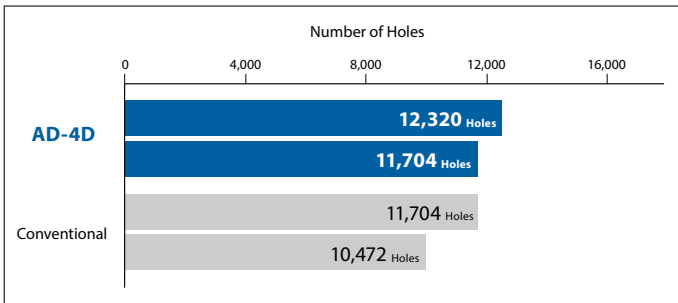
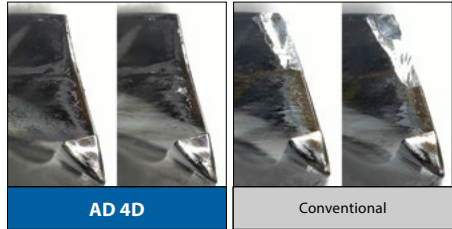
Durability

Durability and Tool Life in 1050 Steel

EgiAs coating provides superior protection against friction, resulting in longer tool life and more holes per tool.

Tool	AD 4D	Conventional
Drill Size	Ø6	
Work Material	1050 Carbon Steel	
Cutting Speed	328 SFM (5,285 RPM)	
Feed Rate	37 IPM (0.007 IPR)	
Depth of Hole	18 mm (Blind)	
Coolant	Water Soluble (External)	
Machine	Vertical Machining Center	

Tool Wear



A Brand ADO

Advanced Performance Coolant-Through Carbide Drills



A Brand ADO

The A Brand ADO drill series is OSG's premium line of carbide coolant-through high performance drills, designed to drill in a variety of steels up to 50X diameter without pecking. New point geometry reduces thrust forces, while our proprietary EgiAs coating provides drastically higher hardness and heat resistance, enabling higher drilling speeds and incredible tool life.



Features & Benefits

- **OSG's proprietary EgiAs coating** provides higher oxidation temperature and hardness improving wear resistance.
- **Wavy form cutting edge design (3D-8D)** reduces thrust forces and produces smaller chips for easy evacuation.
- **Internal coolant holes** reduces heat and improves chip evacuation for increased tool life and faster drilling speeds.

List Numbers

- 6500 - A Brand ADO (3D)
- 6510 - A Brand ADO (5D)
- 6520 - A Brand ADO (8D)
- 6530 - A Brand ADO (10D)
- 6535 - A Brand ADO (15D)
- 6540 - A Brand ADO (20D)
- 6550 - A Brand ADO (30D)
- 6560 - A Brand ADO (40D)
- 6570 - A Brand ADO (50D)

Size Range

- 2mm-20mm, 3/32"-3/4"
- 2mm-20mm, 3/32"-3/4"
- 2mm-15.88mm, 3/32"-5/8"
- 2mm-14.29mm, 3/32"-9/16"
- 3mm-14.29mm, 1/8"-9/16"
- 3mm-14.29mm, 1/8"-9/16"
- 3mm-14.29mm, 1/8"-9/16"
- 3mm-10mm, 1/8"-3/8"
- 3mm-8mm, 1/8"-5/16"

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	⊙
P	Medium Carbon Steel : 1035, 1045	⊙
P	High Carbon Steel : 1065	⊙
P	Alloy Steels : 4140, 4340	⊙
P	Die Steels	⊙
M	Stainless Steels : 300	○
M	Stainless Steels : 400	○
M	Stainless Steels : 17-4PH	○
K	Cast Iron	⊙
N	Aluminum : 6061, 7075	○
N	Aluminum : Casting	○
S	Nickel Alloy : Inconel	○
S	Titanium : 6AL4V (30HRC)	○
H	Hardened Steels : ~35 HRC	⊙
H	Hardened Steels : 35-45 HRC	○
H	Hardened Steels : 45-50 HRC	○
H	Hardened Steels : 50-70 HRC	○

○ good ⊙ best

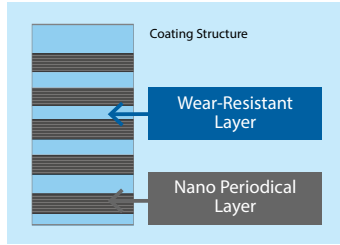
For more information scan the QR code to the right and visit: osgtool.com/ado



EgiAs Coating

Exceptional Wear Resistance & Toughness

Constructed with extreme toughness, high wear and heat resistance characteristics to ensure stable and consistent tool life. Suppresses friction with the wear resistance layer; prevents breakage with the nano periodical layer.



Coating Color	Coating Structure	Hardness (Hv)	Oxidation Temperature (°C)	Heat Resistance	Adhesion Strength	Wear Resistance	Welding Resistance	Toughness
Iridescent Color	Periodic Nano-layer and wear resistance layer	3,200	1,100	⊙	⊙	⊙	⊙	⊙

Two Point Forms Based on Length

Wavy Point Form (3D-8D) or Straight Point Form (10D-50D)

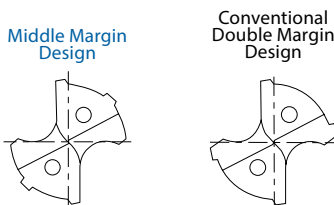
Wavy point form improves the sharpness of the cutting edge at various areas where the cutting force fluctuates with the cutting speed, thereby achieving low thrust, stable torque, and longer tool life.

Straight point form offers superior point strength with low cutting forces for long drills even with long overhang length.

Middle Margin Design (8D & Up)

More Stability than Conventional Double Margin Designs

Unlike the conventional double margin, the second margin has been placed in the center of the peripheral land. This has shortened the time from the start of engagement to the four-point restraint by the double margin. Furthermore, it has improved stability during intermittent cutting such as cross-drilling or when penetrating an angled surface.



A Brand ADO-MICRO

Advanced Performance Carbide Micro Drills

A Brand ADO-MICRO

ADO-MICRO's unique oil holes and flute geometry enable stable and high efficiency processing in small diameter deep-hole applications. Large oil holes and the hollow shank design allows greater coolant flow volume for smooth chip evacuation. The extended flute enables chips to be discharged from the tip of the flute to the extended flute with enhanced evacuation capability.



Features & Benefits

- **Unique flute geometry** that enables outstanding chip evacuation performance.
- **Large oil holes and hollow shank design** to allow greater coolant flow volume.
- **Double margin configuration** that supports the straightness stability of the tool.

List Numbers

6501 - A Brand ADO-MICRO (2D)
6502 - A Brand ADO-MICRO (5D)
6503 - A Brand ADO-MICRO (12D)
6504 - A Brand ADO-MICRO (20D)
6505 - A Brand ADO-MICRO (30D)

Size Range

0.7mm-2mm
0.7mm-2mm
1mm-2mm
1mm-2mm
1mm-2mm

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	⊙
P	Medium Carbon Steel : 1035, 1045	⊙
P	High Carbon Steel : 1065	⊙
P	Alloy Steels : 4140, 4340	⊙
P	Die Steels	⊙
M	Stainless Steels : 300	⊙
M	Stainless Steels : 400	⊙
M	Stainless Steels : 17-4PH	⊙
K	Cast Iron	⊙
N	Aluminum : 6061, 7075	○
N	Aluminum : Casting	○
S	Nickel Alloy : Inconel	○
S	Titanium : 6AL4V (30HRC)	○
H	Hardened Steels : ~35 HRC	⊙
H	Hardened Steels : 35-45 HRC	○
H	Hardened Steels : 45-50 HRC	○
H	Hardened Steels : 50-70 HRC	○

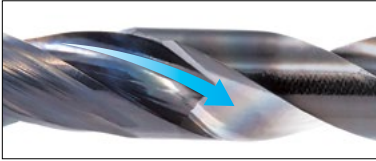
○ good ⊙ best

For more information scan the QR code to the right and visit: osgtool.com/ado-micro



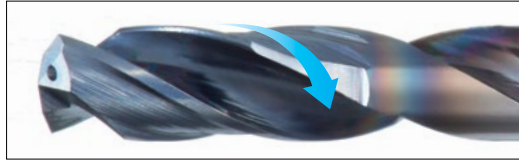
Outstanding Chip Evacuation

Unique Flute Structure



Extended Flute

Chips are discharged from the tip of the flute to the extended flute with enhanced evacuation capability.



Removed End of Margin

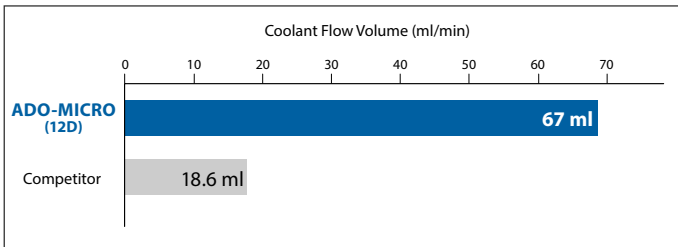
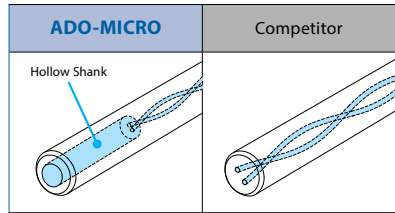
Capability to smoothly discharge "micro sludges" that can be easily accumulated around the outer periphery of the tool, which is a key cause of abrupt tool breakage.

Greater Coolant Flow Volume

Large Oil Holes and Hollow Shank Design

The hollow shank design allows greater coolant flow volume which enables smooth chip evacuation.

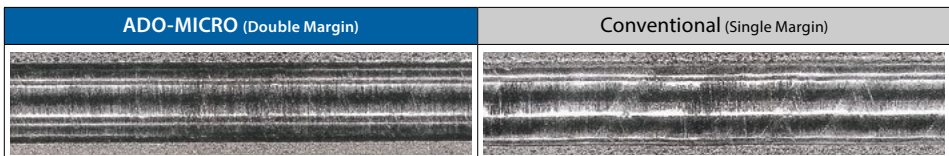
Tool	ADO-MICRO (12D)	Competitor
Size	Ø1.5	
Shank Style	Hollow	Solid
Coolant	Water-Soluble (Internal)	
Coolant Pressure	1.5Mpa	
Time	60 Seconds	



Stable Performance

Double Margin Configuration

The double margin enhances the drill's stability while drilling, improving performance, hole accuracy, and surface finish.



Tool: ADO-MICRO 20D Ø2 | Work Material: 304 Stainless | Depth of Hole: 40mm

A Brand ADO-SUS

Advanced Performance Coolant-Through Carbide Drills



A Brand ADO-SUS

The A Brand ADO-SUS drills are one of OSG's premium lines of carbide, coolant-through, advanced performance drills, designed to drill in stainless steel and titanium. New "Mega Cooler™" coolant hole shape improves coolant flow by 33%, aids in better chip evacuation and less cutting heat generation.



Features & Benefits

- **OSG's patented WXL® coating** dramatically improves wear resistance.
- **Sharp Cutting Edge** reduces work hardening, leading to longer tool life.
- **Mega Cooler™ coolant hole** improves coolant flow, chip evacuation and heat generation.

List Numbers

5200 - A Brand ADO-SUS (3D)
 5210 - A Brand ADO-SUS (5D)
 5220 - A Brand ADO-SUS (8D)

Size Range

2mm-20mm, 3/32"-3/4"
 2mm-20mm, 3/32"-3/4"
 2mm-12.7mm, 3/32"-1/2"

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	⊙
P	Medium Carbon Steel : 1035, 1045	⊙
P	High Carbon Steel : 1065	○
P	Alloy Steels : 4140, 4340	○
P	Die Steels	
M	Stainless Steels : 300	⊙
M	Stainless Steels : 400	⊙
M	Stainless Steels : 17-4PH	⊙
K	Cast Iron	⊙
N	Aluminum : 6061, 7075	
N	Aluminum : Casting	○
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	⊙
H	Hardened Steels : ~35 HRC	○
H	Hardened Steels : 35-45 HRC	
H	Hardened Steels : 45-50 HRC	
H	Hardened Steels : 50-70 HRC	

○ good ⊙ best

For more information scan the QR code to the right and visit: osgtool.com/ado-sus



Why Use A Brand ADO-SUS?

The Solution to your Stainless Steel and Titanium Troubles

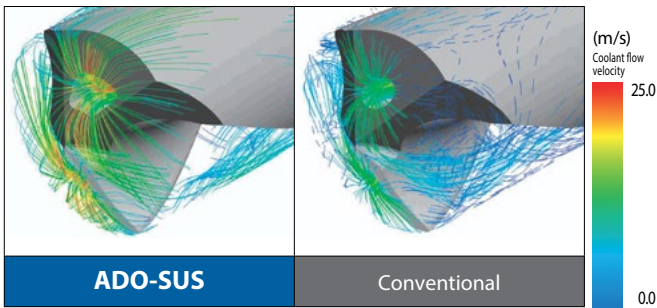
OSG's A Brand ADO-SUS has specifically addressed many common issues that occur when machining stainless steels and titanium alloys such as work hardening, elongated chips, low thermal conductivity and welding on the tool.

With a patent pending cutting edge, new flute geometry, WXL® coating and the newly designed Mega Cooler™ coolant hole, the ADO-SUS has a solution for all of your stainless steel and titanium troubles.

Mega Cooler™ Coolant Hole

Exceptional Coolant Delivery

Improved coolant delivery at the cutting edge suppresses heat buildup and improves chip evacuation, thereby increasing tool life and enabling faster drilling speeds. The Mega Cooler™ coolant hole is only available on sizes 6mm and over.

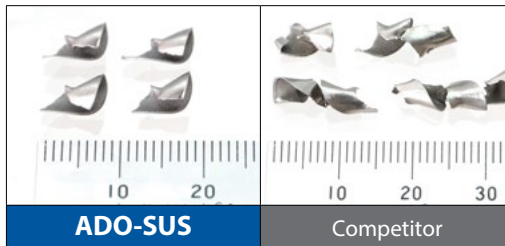


Analysis of coolant flow with spindle speed of 2,200 RPM

New Flute Geometry

Producing Manageable Chips

The A Brand ADO-SUS features a cutting geometry specifically designed for producing compact cutting chips.



A Brand ADO-TRS

Advanced Performance High Feed 3-Flute Carbide Drills



A Brand ADO-TRS

The A Brand ADO-TRS drill with its advanced performance 3-flute geometry, allows for reduced vibration, higher feed rates, improved chip evacuation, decreased work hardening, and stable drilling. The end result is up to 3X faster than 2-flute drills and up to 3X longer life.



Features & Benefits

- **OSG's EgiAs nano multilayered coating** delivers exceptional wear resistance and toughness.
- **Patented flute geometry** breaks steel chips into small, manageable pieces for easy evacuation.
- **The 120°, equally spaced, margins** of the 3-flute design allows for more stable, vibration-free, hole processing while increasing hole quality and tolerance.

List Numbers

6600 - A Brand ADO-TRS (3D)
6610 - A Brand ADO-TRS (5D)

Size Range

3mm-20mm, 1/8"-3/4"
3mm-20mm, 1/8"-3/4"

Primary Applications

- Carbon Steels, Alloy Steel, Die Steel, Cast Iron, Stainless Steel (400 series)
- Any application where currently using a 2-flute coolant-fed drill.

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	⊙
P	Medium Carbon Steel : 1035, 1045	⊙
P	High Carbon Steel : 1065	⊙
P	Alloy Steels : 4140, 4340	⊙
P	Die Steels	⊙
M	Stainless Steels : 300	
M	Stainless Steels : 400	⊙
M	Stainless Steels : 17-4PH	○
K	Cast Iron	⊙
N	Aluminum : 6061, 7075	
N	Aluminum : Casting	○
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	○
H	Hardened Steels : ~35 HRC	⊙
H	Hardened Steels : 35-45 HRC	○
H	Hardened Steels : 45-50 HRC	○
H	Hardened Steels : 50-70 HRC	

○ good ⊙ best

For more information scan or click the QR code to the right and visit: osgtool.com/ado-trs



A Brand ADO-TRS

Advanced Performance High Feed 3-Flute Carbide Drills

3-Flute vs 2-Flute

The 3 Advantages of a 3-Flute Design

High Feed Rate:

OSG's ADO-TRS drills have a specially shaped flute (PAT.P.) that breaks steel chips into small, manageable pieces for easy evacuation. This allows for increased feed rates up to 1.5 to 2 times faster than 2-fluted drills.

High Precision:

The 120° equal spacing margins of the 3-flute design allows for more stable, vibration-free hole processing, thereby increasing hole quality and tolerance.

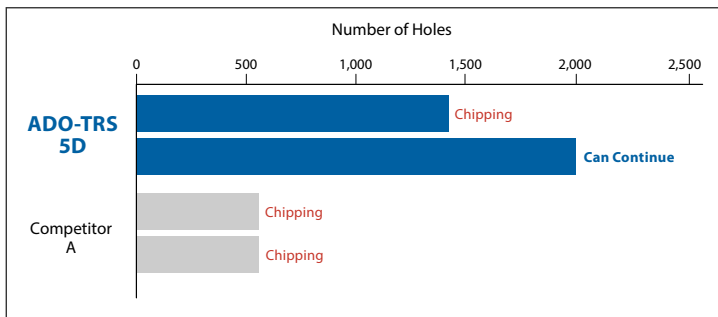
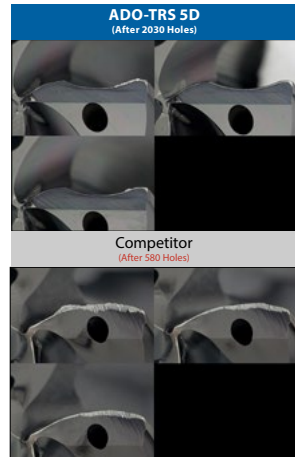
Reduced Work Hardening:

The amount of work hardening and depth of work hardening have a tendency to be proportional to the feed per revolution. When compared to conventional 2-flute drills with the same feed per revolution, the 3-flute design has proven to decrease work hardening.

Tool Life in Cast Iron

Gray Cast Iron

Tool	ADO-TRS 5D	Competitor A
Drill Size	Ø8.5mm	
Work Material	Gray Cast Iron	
Cutting Speed	230 SFM (2,625 RPM)	
Feed Rate	44.6 IPM (0.017 IPR)	
Depth of Hole	43 mm	
Coolant	Water Soluble	
Machine	Vertical Machining Center	



A Brand ADF

Advanced Performance Flat Drills

A Brand ADF

The A Brand ADF flat bottom drill enables one-step drilling to simplify machining time and tool management. Now offered in coolant-through and long shank, this drill is suitable for a wide variety of drilling applications including cross holes, inclined surfaces, counter boring in curved surfaces, eccentric holes, thin plates, etc.



Features & Benefits

- **OSG's proprietary EgiAs coating** suppresses friction with the high wear resistance layer to help prevent breakage.
- **Unique end cut geometry** reduces cutting forces to enable more stable and precise drilling.
- **Wide flute geometry** allows smooth chip evacuation.

List Numbers

Size Range

5700 - A Brand ADF (2D)	0.2mm-20mm, 1/64"-3/4"
5705 - A Brand ADF-LS (2D, Long Shank)	3mm-20mm, 1/8"-3/4"
5720 - A Brand ADFO (3D, Coolant-Through)	3mm-20mm, 1/8"-3/4"

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	⊙
P	Medium Carbon Steel : 1035, 1045	⊙
P	High Carbon Steel : 1065	⊙
P	Alloy Steels : 4140, 4340	⊙
P	Die Steels	⊙
M	Stainless Steels : 300	○
M	Stainless Steels : 400	○
M	Stainless Steels : 17-4PH	○
K	Cast Iron	⊙
N	Aluminum : 6061, 7075	○
N	Aluminum : Casting	○
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	
H	Hardened Steels : ~35 HRC	⊙
H	Hardened Steels : 35-45 HRC	○
H	Hardened Steels : 45-50 HRC	
H	Hardened Steels : 50-70 HRC	

○ good ⊙ best

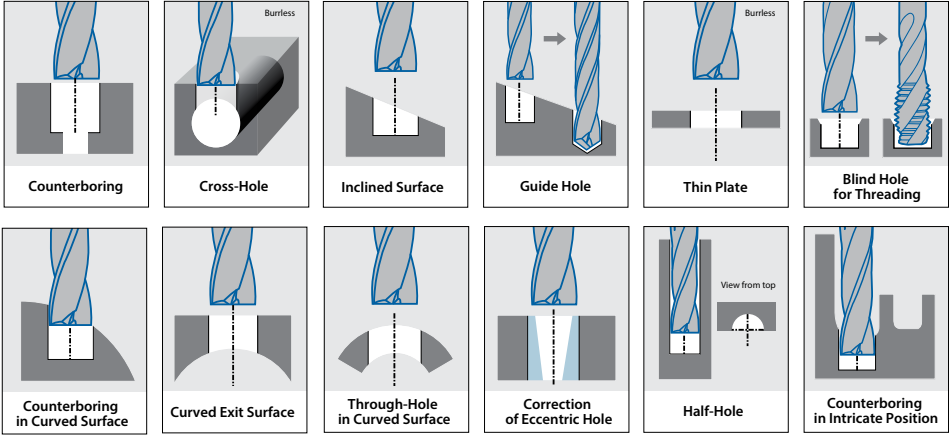
For more information scan the QR code to the right and visit: osgtool.com/adf



Multi-Purpose Flat Drills

The ADFO and ADF are Suitable for a Wide Variety of Applications


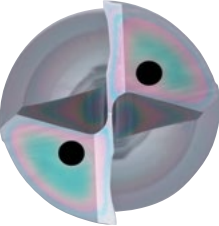
The ADFO & ADF drills are capable of drilling in numerous applications such as inclined surfaces, curved surfaces, flat-bottom holes and more.



Application Guide

Exceptional Wear Resistance & Toughness

Constructed with extreme toughness, high wear and heat resistance characteristics to ensure stable and consistent tool life. Suppresses friction with the wear resistance layer; prevents breakage with the nano periodical layer.

ADF 2D & ADF-LS 2D	ADFO 3D
 <ul style="list-style-type: none"> • General purpose • Suitable up to 2D • Suitable for a wide variety of applications 	 <ul style="list-style-type: none"> • Up to 3D Drilling • Suitable for stainless steel applications

When machining stainless steel, the ADFO breaks chips into small, manageable pieces



A Brand AD-LDS

Advanced Performance Spot Drills

A Brand AD-LDS

The A Brand AD-LDS increases processing speed for both centering and countersinking. Constructed with extreme toughness, high wear and heat resistance characteristics to ensure stable and consistent tool life.



Features & Benefits

- **OSG's proprietary EgiAs coating** suppresses friction with the wear resistance layer and prevents breakage.
- **Unique Cutting Geometry** for superior sharpness and high chipping resistance.

List Numbers

5190 - A Brand AD-LDS (4D)

Size Range

3mm-25mm,
1/4"-3/4"

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	⊙
P	Medium Carbon Steel : 1035, 1045	⊙
P	High Carbon Steel : 1065	⊙
P	Alloy Steels : 4140, 4340	⊙
P	Die Steels	⊙
M	Stainless Steels : 300	
M	Stainless Steels : 400	
M	Stainless Steels : 17-4PH	
K	Cast Iron	⊙
N	Aluminum : 6061, 7075	
N	Aluminum : Casting	○
S	Nickel Alloy : Inconel	○
S	Titanium : 6AL4V (30HRC)	○
H	Hardened Steels : ~35 HRC	⊙
H	Hardened Steels : 35-45 HRC	⊙
H	Hardened Steels : 45-50 HRC	⊙
H	Hardened Steels : 50-70 HRC	

○ good ⊙ best

For more information scan the QR code to the right and visit: osgtool.com/ad-lds

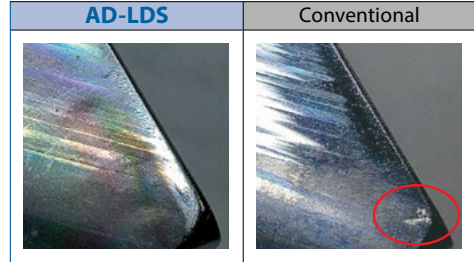


EgiAs Coating

Exceptional Wear Resistance & Toughness

Constructed with extreme toughness, high wear resistance characteristics to ensure stable and consistent tool life.

Tool	AD-LDS	Conventional
Drill Size	Ø12x90°	
Work Material	Carbon Steel	
Cutting Speed	164 SFM (1,326 RPM)	
Feed Rate	9.4 IPM (0.007 IPR)	
Coolant	Water-Soluble	
Machine	Horizontal Machining Center	



Selection Chart for Spot Drills

Classifying Spot Drill by Point Angle

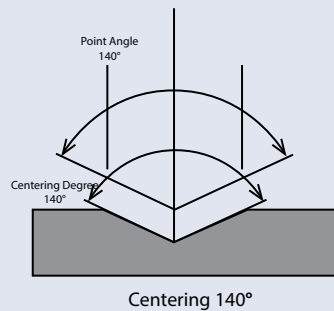
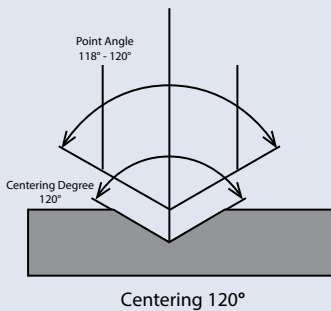
Spot drills can perform both centering and chamfering. Centering improves drilling precision. Chamfering prevents burrs on the end face during tapping and removes burrs that may occur during drilling.

Point Angle 90°

for 45° chamfering, for both centering and chamfering.

Point Angle 120° & 140°

for centering before drilling.



The A Brand *The Tooling Master Class*

A-END MILL LINE-UP

The A Brand is not only a premium tooling brand, it also represents the quality assurance OSG guarantees to each and every customer. You will experience a level of quality, reliability and satisfaction that can only be delivered by the A Brand tooling master class.

Advanced performance A-End Mills are optimized for the most challenging applications.

A-END MILL



A Brand AE-VM (VMS, VMS-RA, CR-VMS, LN-CR-VMS, VMSS, VMSS-RA, LN-VMSS)
Advanced Performance Anti-Vibration Carbide End Mills



A Brand AE-VML (VML, CR-VML, NIK-VML)
Advanced Performance Carbide End Mills for High Efficiency Side Milling



A Brand AE-VMFE (VMFE, CR-VMFE)
Advanced Performance Anti-Vibration Reduced Shank Carbide End Mills



A Brand AE-VTSS
Advanced Performance Anti-Vibration Multi-Function Carbide End Mills for CNC Lathes



A Brand AE-MS-H (MS-H, CR-MS-H, MSS-H)
Advanced Performance Carbide End Mills with DUOREY Coating for Hardened Steels



A Brand AE-ML-H
Advanced Performance Carbide End Mills with DUOREY Coating for Hardened Steels



A Brand AE-BM-H

Advanced Performance Carbide End Mills with DUOREY Coating for Hardened Steels



A Brand AE-BD-H

Advanced Performance Carbide End Mills with DUOREY Coating for Hardened Steels



A Brand AE-LNBD-H

Advanced Performance Carbide End Mills with DUOREY Coating for Hardened Steels



A Brand AE-CPR4-H

Advanced Performance Carbide End Mills with DUOREY Coating for Hardened Steels



A Brand AE-TL-N

Advanced Performance DLC Coated End Mills for Non-Ferrous Materials



A Brand AE-VTS-N (VTS-N, CR-VTS-N)

Advanced Performance DLC Coated End Mills for Non-Ferrous Materials



A Brand AE-LNBD-N

Advanced Performance DLC Coated End Mills for Non-Ferrous Materials

A Brand AE-VM

Advanced Performance Anti-Vibration Carbide End Mills

A Brand AE-VM

The AE-VM end mills bring you the new standard for milling. Variable lead geometry suppresses vibration and enables stable and high efficiency milling. Along with its substrate of micrograin carbide, it also comes with OSG's newest multi-layer DUARISE coating for superior surface quality. With a full offering including square, corner radius, and long reach, it is sure to cover all your needs.



Features & Benefits

- **OSG's DUARISE coating** provides excellent lubricity, superior friction-resistance and high oxidation temperature. Multi-layered construction minimizes thermal cracks.
- **New flute form** with high tool rigidity and excellent chip evacuation for stable milling and suppression of burrs.
- **Positive rake angle** reduces cutting forces.

List Numbers

List Number	Size Range
8200 - A Brand AE-VMS (Inch)	5/64"-1"
8205 - A Brand AE-VMS (Metric)	3mm-25mm
8210 - A Brand AE-CR-VMS (Inch, Corner Radius)	3/16"-1"
8215 - A Brand AE-CR-VMS (Metric, Corner Radius)	3mm-12mm
8220 - A Brand AE-LN-CR-VMS (Inch, CR, Long Neck)	1/4"-1"
8206 - A Brand AE-VMSS (Metric)	3mm-12mm
8230 - A Brand AE-LN-VMSS (Inch, Long Neck)	1/4"-1"
8235 - A Brand AE-LN-VMSS (Metric, Long Neck)	6mm-12mm
8225 - A Brand AE-VMS-RA (Metric)	3mm-6mm
8226 - A Brand AE-VMSS-RA (Metric)	1mm-6mm

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	⊙
P	Medium Carbon Steel : 1035, 1045	⊙
P	High Carbon Steel : 1065	⊙
P	Alloy Steels : 4140, 4340	⊙
P	Die Steels	⊙
M	Stainless Steels : 300	⊙
M	Stainless Steels : 400	⊙
M	Stainless Steels : 17-4PH	⊙
K	Cast Iron	⊙
N	Aluminum : 6061, 7075	○
N	Aluminum : Casting	○
S	Nickel Alloy : Inconel	○
S	Titanium : 6AL4V (30HRC)	○
H	Hardened Steels : ~35 HRC	⊙
H	Hardened Steels : 35-45 HRC	○
H	Hardened Steels : 45-50 HRC	○
H	Hardened Steels : 50-70 HRC	○

○ good ⊙ best

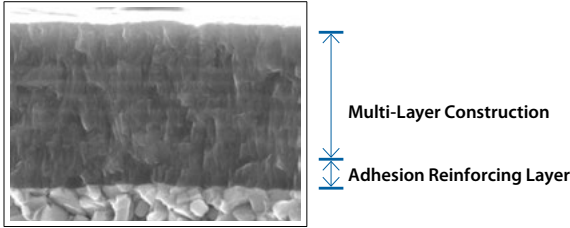
For more information scan the QR code to the right and visit: osgtool.com/a-brand-ae-vm



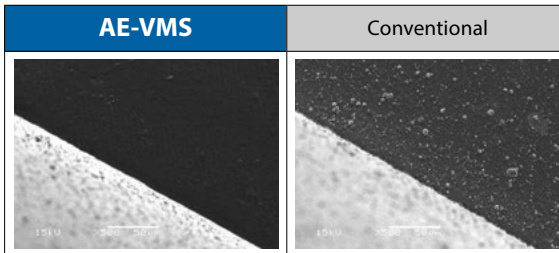
DUARISE Coating

Superior Surface Quality

OSG's DUARISE coating provides excellent lubricity, superior friction-resistance, and high oxidation temperature. Multi-layer construction minimizes the thermal cracks that often occur when using water-soluble oil.



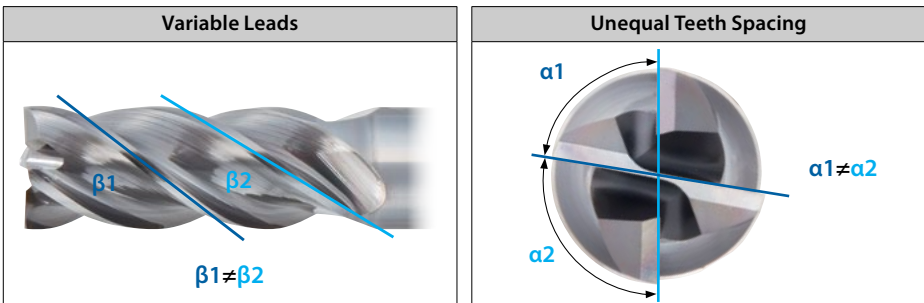
DUARISE Coating Provides Excellent Surface Finish



Vibration Suppression

Stable, High Efficiency Milling

Unequal spacing of teeth and variable-lead geometry enables stable and high efficiency milling.



A Brand AE-VML

Advanced Performance Carbide End Mills for High Efficiency Side Milling



A Brand AE-VML

The AE-VML carbide end mill series brings you the new standard for side milling. High-speed side milling is made possible by the large core design where the thickness of the core changes from the cutting edge to the shank for improved tool rigidity and prevention of machining surface tilting. Variable lead, unequal spaced teeth and microrelief geometry contributes to stable and high efficiency milling performance. The new chipbreaker creates small chips that can be easily evacuated to enable continuous machine operation in high chip removal side milling, trochoidal milling and pocket milling.



Features & Benefits

- **OSG's DUARISE coating** provides excellent lubricity, superior friction-resistance and high oxidation temperature. Multi-layered construction minimizes thermal cracks.
- **Tapered core**, greatly improves tool rigidity to prevent the machining surface from tilting.
- **Chipbreaker** creates small and compact chips to enable uninterrupted machining operations.

List Numbers

8201 - A Brand AE-VML (Inch)	1/4"-1"
8207 - A Brand AE-VML (Metric)	6mm-20mm
8271 - A Brand AE-CR-VML (Inch)	1/4"-1/2"
8277 - A Brand AE-CR-VML (Metric)	6mm-12mm
8202 - A Brand AE-NIK-VML (Inch, Nicked)	1/4"-1"
8208 - A Brand AE-NIK-VML (Metric, Nicked)	6mm-20mm

Size Range

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	⊙
P	Medium Carbon Steel : 1035, 1045	⊙
P	High Carbon Steel : 1065	⊙
P	Alloy Steels : 4140, 4340	⊙
P	Die Steels	⊙
M	Stainless Steels : 300	⊙
M	Stainless Steels : 400	⊙
M	Stainless Steels : 17-4PH	⊙
K	Cast Iron	⊙
N	Aluminum : 6061, 7075	○
N	Aluminum : Casting	○
S	Nickel Alloy : Inconel	○
S	Titanium : 6AL4V (30HRC)	○
H	Hardened Steels : ~35 HRC	⊙
H	Hardened Steels : 35-45 HRC	⊙
H	Hardened Steels : 45-50 HRC	○
H	Hardened Steels : 50-70 HRC	○

○ good ⊙ best

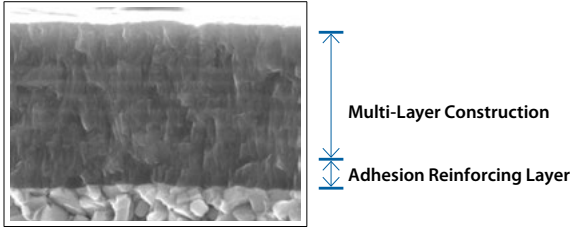
For more information scan the QR code to the right and visit: osgtool.com/a-brand-ae-vm



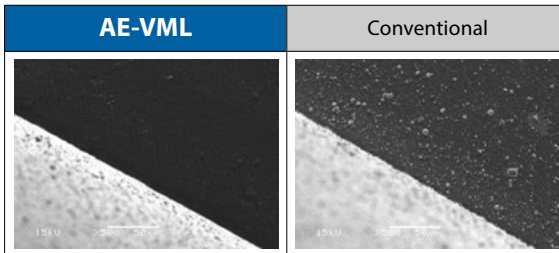
DUARISE Coating

Superior Surface Quality

OSG's DUARISE coating provides excellent lubricity, superior friction-resistance, and high oxidation temperature. Multi-layer construction minimizes the thermal cracks that often occur when using water-soluble oil.



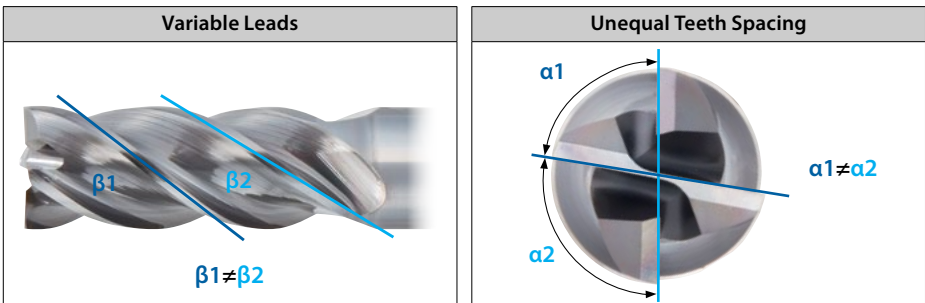
DUARISE Coating Provides Excellent Surface Finish



Vibration Suppression

Stable, High Efficiency Milling

Unequal spacing of teeth and variable-lead geometry enables stable and high efficiency milling.



A Brand AE-VMFE

Advanced Performance Anti-Vibration Reduced Shank Carbide End Mills

A Brand AE-VMFE

The A Brand AE-VMFE for deep side milling is an anti-vibration carbide end mill series engineered to excel in a wide range of materials including carbon steel, alloy steel, stainless steel, titanium alloys and Ni-based alloys. With the AE-VMFE deep side milling at L/D of 5 x D or more can be machined with high efficiency and high accuracy by large step milling up to 2 x D with its 2.5 x D cutting length configuration.



Features & Benefits

- **R-Shape on the shank side edge** suppresses streak generation.
- **2.5 cutting length** make highly efficient deep side milling possible.
- **Variable lead, unequal teeth spacing and microrelief geometry** suppress chattering up to L/D of 8.

List Numbers

8245 - A Brand AE-VMFE (Metric)
8246 - A Brand AE-CR-VMFE (Metric)

Size Range

6mm-12mm
6mm-12mm

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	⊙
P	Medium Carbon Steel : 1035, 1045	⊙
P	High Carbon Steel : 1065	⊙
P	Alloy Steels : 4140, 4340	⊙
P	Die Steels	⊙
M	Stainless Steels : 300	⊙
M	Stainless Steels : 400	⊙
M	Stainless Steels : 17-4PH	⊙
K	Cast Iron	⊙
N	Aluminum : 6061, 7075	○
N	Aluminum : Casting	○
S	Nickel Alloy : Inconel	○
S	Titanium : 6AL4V (30HRC)	○
H	Hardened Steels : ~35 HRC	⊙
H	Hardened Steels : 35-45 HRC	⊙
H	Hardened Steels : 45-50 HRC	○
H	Hardened Steels : 50-70 HRC	○

○ good ⊙ best

For more information scan the QR code to the right and visit: osgtool.com/ae-vmfe

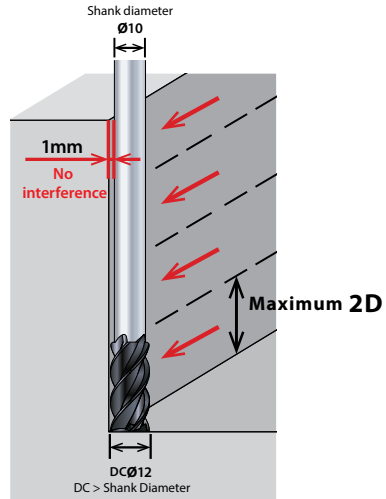


Highly Efficient Deep Side Milling

2.5D Cutting Length

Highly efficient deep side milling is possible with large step milling of up to $2xD^*$.

*The recommended depth of cut varies depending on the overhang length.



Supports Various Machining Depths

Long Length Reduced Shank Type

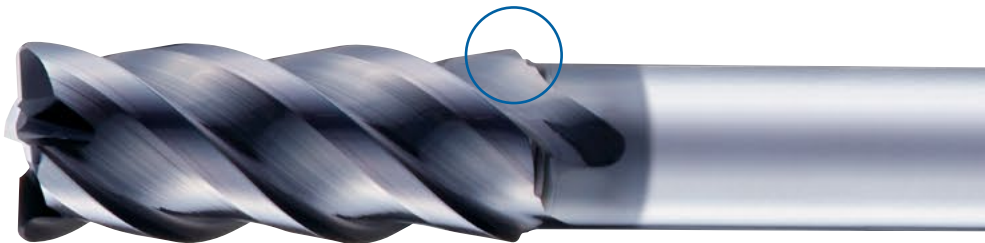
Reduced shank types are tools with an outer diameter that is larger than the shank diameter.

- Supports deep side milling and pocket milling of mold parts, etc.
- Supports various machining depth by changing the overhang length.

Reduced Streak Generation

R Shape on the Shank Side Edge

The R Shape on the shank side edge suppresses streak generation by side step milling.



A Brand AE-VTSS

Advanced Performance Anti-Vibration Multi-Function Carbide End Mills for CNC Lathes

A Brand AE-VTSS

A Brand AE-VTSS is a Duarise coated advanced multifunctional carbide end mill for ferrous metals. With superb chip handling, this stubby end mill can side mill, slot, ramp, and plunge.



Features & Benefits

- **Positive Rake Angle** Reduces cutting force.
- **High Rigidity** Improves milling accuracy.
- **New Flute Form** Facilitates excellent chip evacuation.
- **Duarise Coating** Minimizes thermal cracks.
- **Variable Leads** Enables stable and high efficiency milling.

List Numbers

8233 - A Brand AE-VTSS (Inch)
8333 - A Brand AE-VTSS (Metric)

Size Range

1/8"-1/2"
3mm-12mm



ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	⊙
P	Medium Carbon Steel : 1035, 1045	⊙
P	High Carbon Steel : 1065	⊙
P	Alloy Steels : 4140, 4340	⊙
P	Die Steels	⊙
M	Stainless Steels : 300	⊙
M	Stainless Steels : 400	⊙
M	Stainless Steels : 17-4PH	⊙
K	Cast Iron	⊙
N	Aluminum : 6061, 7075	○
N	Aluminum : Casting	○
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	○
H	Hardened Steels : ~35 HRC	⊙
H	Hardened Steels : 35-45 HRC	○
H	Hardened Steels : 45-50 HRC	
H	Hardened Steels : 50-70 HRC	

○ good ⊙ best

For more information scan the QR code to the right and visit: osgtool.com/ae-vtss



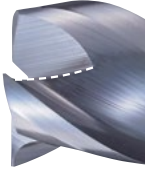
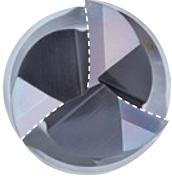
A Brand AE-VTSS

Advanced Performance Anti-Vibration Multi-Function Carbide End Mills for CNC Lathes

Stable Plunging

3-Flute Design and Bottom Cutting Edge Hook Shape

For stable chip shape and improved chip evacuation. Can be used for a wide variety of processing such as plunging.



Chip shape from plunging

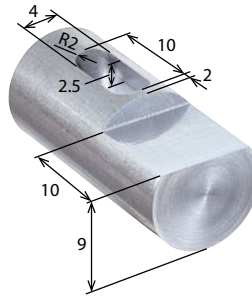
Work Material: SUS304

Dry Machining

AISI 4135 Alloy Steel

For roughing of the slot, the same machining is performed twice to secure a depth of 2.5mm.

Tool	AE-VTSS
Work Material	AISI 4135 Alloy Steel Bar Ø12mm
Machine	CNC Sliding Head Lathe
Coolant	None



Part Dim Conversions	
Metric	Inch
2	0.0787
2.5	0.0984
4	0.1575
9	0.3543
10	0.3937

Scan the QR code to see the AE-VTSS in action!



Milling Part	Milling Process	Milling Method	Tool	Cutting Speed	Feed	Aa	Ar
Face	Roughing	D-Cut (Frontal Milling)	AE-VTSS Ø12	2,400 RPM (295 SFM) (90m/min)	7.9 IPM (0.0011IPT) (0.025mm/t)	0.055" x2 steps (1.4mm)	0.386" (9.8mm)
	Finishing					0.0079" (0.2mm)	0.394" (10mm)
Slot	Roughing	Plunging	AE-VTSS Ø4	5,600 RPM (230 SFM) (70 m/min)	4.53 IPM (0.0008 IPR) (0.021mm/rev)	0.047" (1.2mm)	—
		Slotting				19.7 IPM (0.0012 IPT) (0.03mm/t)	0.047" (1.2mm)
	Finishing	Plunging			4.53 IPM (0.0008 IPR) (0.021mm/rev)	0.0039" (0.1mm)	—
		Slotting				19.7 IPM (0.0012 IPT) (0.03mm/t)	0.0039" (0.1mm)

A Brand AE-MS-H

Advanced Performance Carbide End Mills with DUOREY Coating for Hardened Steels



A Brand AE-MS-H

Multi-flute square type and radius type carbide end mills designed for stable and high-efficiency milling of high-hardness steels. With the addition of the new DUOREY coating uniquely engineered for high-hardness steels, high chipping resistance is made possible even in work materials exceeding 60 HRC, allowing long tool life and high speed milling.



Features & Benefits

- **OSG's DUOREY coating** enables superior heat resistance and high toughness optimized for high-hardness steel milling.
- **Variable Indexing** suppresses chattering.
- **Cutting Edge Geometry** for stable machining of high-hardness steels.

List Numbers

- 8540 - A Brand AE-MS-H (Metric)
- 8440 - A Brand AE-MS-H (Inch)
- 8570 - A Brand AE-CR-MS-H (Metric)
- 8470 - A Brand AE-CR-MS-H (Inch)
- 8541 - A Brand AE-MSS-H (Metric)
- 8441 - A Brand AE-MSS-H (Inch)

Size Range

- 1mm-20mm
- 1/16"-1"
- 3mm-12mm
- 1/16"-1"
- 3mm-12mm
- 1/16"-1/2"

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	
P	Medium Carbon Steel : 1035, 1045	
P	High Carbon Steel : 1065	
P	Alloy Steels : 4140, 4340	○
P	Die Steels	○
M	Stainless Steels : 300	
M	Stainless Steels : 400	
M	Stainless Steels : 17-4PH	
K	Cast Iron	
N	Aluminum : 6061, 7075	
N	Aluminum : Casting	
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	
H	Hardened Steels : ~35 HRC	○
H	Hardened Steels : 35-45 HRC	○
H	Hardened Steels : 45-50 HRC	⊗
H	Hardened Steels : 50-70 HRC	⊗

○ good ⊗ best

For more information scan the QR code to the right and visit: osgtool.com/a-brand-ae-h



A Brand AE-MS-H

Advanced Performance Carbide End Mills with DUOREY Coating for Hardened Steels



Stable Machining of High-Hardness Steels

Cutting Edge Geometry

Improved durability in high-hardened steel up to 65HRC~70HRC.

Tool	AE-MS-H (Ø4)
Work Material	STAVAX (52 HRC)
Milling Method	Side Milling
Cutting Speed	328 SFM (7,950 rpm)
Feed	49.2 IPM (0.0015 IPT)
Depth of Cut	Aa = 0.2362", Ar = 0.0079"
Coolant	Air Blow
Machine	Vertical Machining Center




Wear condition of the cutting edge

AE-MS-H	Conventional
	
1,151 ft Milling Length	588 ft Milling Length

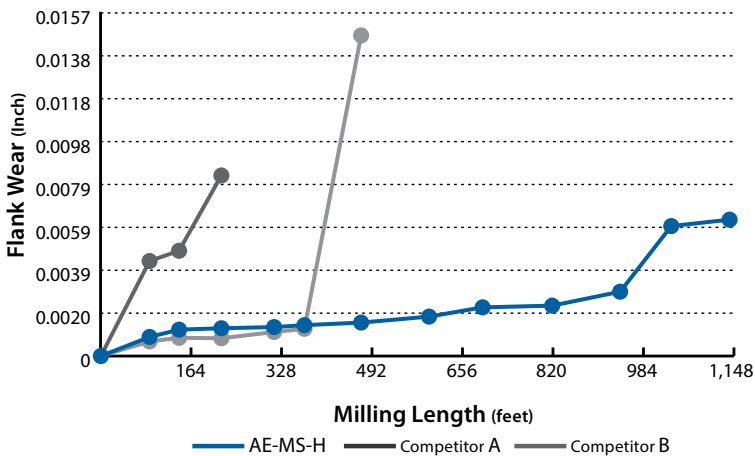
Stable Performance

Stable Performance Even in Pre-Hardened Steel STAVAX (52 HRC)

Tool	AE-MS-H (Ø4)
Work Material	STAVAX (52 HRC)
Milling Method	Side Milling
Cutting Speed	328 SFM (7,950 RPM)
Feed	49.2 IPM (0.0015 IPT)
Depth of Cut	Aa = 0.2362", Ar = 0.0079"
Coolant	Air Blow
Machine	Vertical Machining Center (BT40)

AE-MS-H 1,151 ft	Competitor A 201 ft	Competitor B 473 ft
		

Wear comparison for peripheral cutting edge.



A Brand AE-ML-H

Advanced Performance Carbide End Mills with DUROREY Coating for Hardened Steels



A Brand AE-ML-H

Multi-flute square type carbide end mills designed for stable and high-efficiency milling of high-hardness steels. With the addition of the new DUROREY coating uniquely engineered for high-hardness steels, high chipping resistance is made possible even in work materials exceeding 60 HRC, allowing long tool life and high speed milling.



Features & Benefits

- **Variable Indexing** suppresses chattering.
- **Suppresses chattering** for stable machining of high-hardness steels.
- **DUROREY Coating** for outstanding performance in high-hardness steels
- **Web taper geometry of core** improves tool rigidity and prevents the machining surface from tilting.

List Numbers

8442 - A Brand AE-ML-H (Inch)
8542 - A Brand AE-ML-H (Metric)

Size Range

1/8"-1/2"
3mm-12mm

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	
P	Medium Carbon Steel : 1035, 1045	
P	High Carbon Steel : 1065	
P	Alloy Steels : 4140, 4340	○
P	Die Steels	○
M	Stainless Steels : 300	
M	Stainless Steels : 400	
M	Stainless Steels : 17-4PH	
K	Cast Iron	
N	Aluminum : 6061, 7075	
N	Aluminum : Casting	
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	
H	Hardened Steels : ~35 HRC	○
H	Hardened Steels : 35-45 HRC	○
H	Hardened Steels : 45-50 HRC	⊗
H	Hardened Steels : 50-70 HRC	⊗

○ good ⊗ best

For more information scan the QR code to the right and visit: osgtool.com/a-brand-ae-h



A Brand AE-ML-H

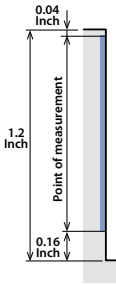
Advanced Performance Carbide End Mills with DUOREY Coating for Hardened Steels

High Precision Milling

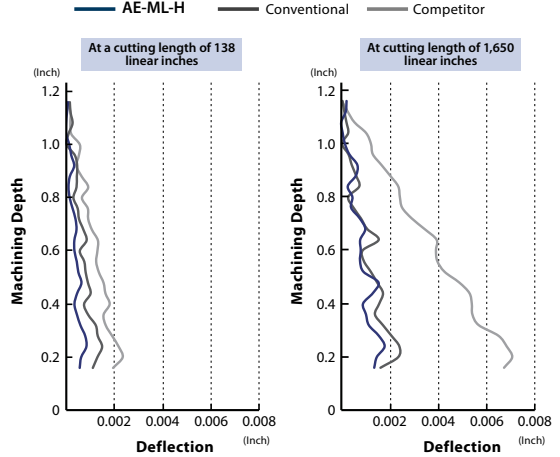
Achieves Stable Milling Accuracy in High-Hardness Steel Machining

Stable machining accuracy can be obtained with little change in the amount of deflection of the machined surface regardless of the cutting length.

Tool	AE-ML-H (Ø10 6FL)
Work Material	D2 Tool Steel (60 HRC)
Milling Method	Side Milling
Cutting Speed	98.5 SFM (955 RPM)
Feed	10.2 IPM (0.00177 IPT)
Depth of Cut	Aa = 1.181", Ar = 0.002"
Coolant	Air Blow
Machine	HMC (HSK63)



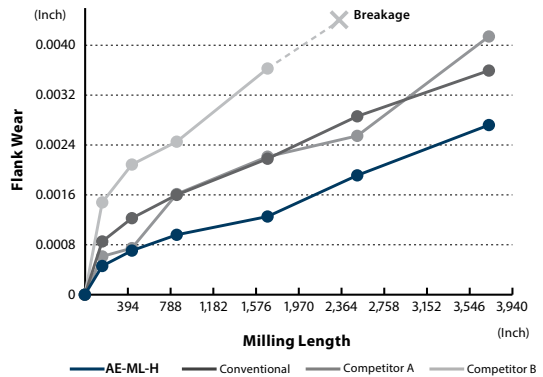
Comparison of Deflection of the Machined Surface



Long Tool Life

Achieves Stable Durability in High-Hardness Steel Machining

Tool	AE-ML-H (Ø10 6FL)
Work Material	SKD11 (60 HRC)
Milling Method	Side Milling
Cutting Speed	98.5 SFM (955 RPM)
Feed	10.2 IPM (0.00177 IPT)
Depth of Cut	Aa = 1.181", Ar = 0.002"
Coolant	Air Blow
Machine	HMC (HSK63)



A Brand AE-BM-H

Advanced Performance Carbide End Mills with DUOREY Coating for Hardened Steels

A Brand AE-BM-H

Carbide ball end mills for high -precision finishing of high-hardness steel with emphasis on machined surface accuracy. The new DUOREY coating enables longer tool life in high-hardness steel and is high chipping resistant in work materials exceeding 60 HRC.



Features & Benefits

- **Superior Ball R Precision** Suitable for a wide range of processes, from roughing to semi-roughing.
- **Sharp Spiral Curve** Reduces cutting resistance and enables stable performance with extended tool life.
- **Center 2-Flute Specification** Controls tear when milling flat areas to improve surface accuracy & secures chip pockets to control the clogging of chips.
- **Unequal Flute Spacing** Controls harmonic vibration commonly generated during milling with multiple flutes to enable high-efficiency milling.
- **Ideal for Shrink Fit Holders** Lineup of short-shank type suitable for shrink fit holders
- **Smooth Surface Treatment** Improves surface accuracy by smoothening coating surface.

List Numbers

8430 - A Brand AE-BM-H (Inch)
8530 - A Brand AE-BM-H (Metric)

Size Range

1/8"-1/2"
1mm-12mm

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	
P	Medium Carbon Steel : 1035, 1045	
P	High Carbon Steel : 1065	
P	Alloy Steels : 4140, 4340	○
P	Die Steels	○
M	Stainless Steels : 300	
M	Stainless Steels : 400	
M	Stainless Steels : 17-4PH	
K	Cast Iron	
N	Aluminum : 6061, 7075	
N	Aluminum : Casting	
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	
H	Hardened Steels : ~35 HRC	○
H	Hardened Steels : 35-45 HRC	○
H	Hardened Steels : 45-50 HRC	⊗
H	Hardened Steels : 50-70 HRC	⊗

○ good ⊗ best

For more information scan the QR code to the right and visit: osgtool.com/ae-bm-h



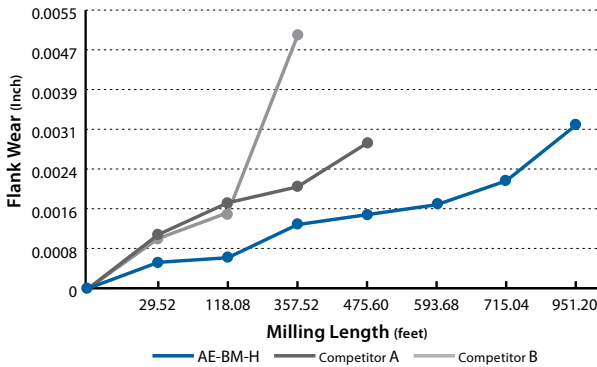
A Brand AE-BM-H

Advanced Performance Carbide End Mills with DUOREY Coating for Hardened Steels

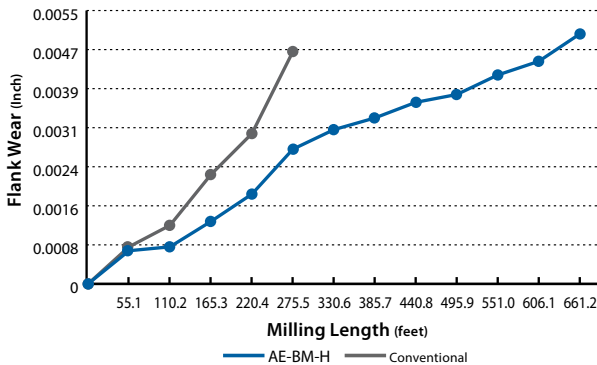
Superior Endurance in High-Hardness Steel

D2 Tool Steel (60 HRC) & M2 High Speed Steel (65 HRC)

Tool	AE-BM-H (10mm)	Competitors
Work Material	D2 Tool Steel (60 HRC)	
Milling Method	Pocketing	
Cutting Speed	180 SFM (1,750 RPM)	
Feed	30.9 IPM (0.0049 IPT)	
Depth of Cut	Aa = 0.0295", Ar = 0.0886"	
Coolant	Air Blow	
Machine	Vertical Machining Center (BT40)	



Tool	AE-BM-H (10mm)	Conventional
Work Material	M2 High Speed Steel (65 HRC)	
Milling Method	Pocketing	
Cutting Speed	410 SFM (4,000 RPM)	
Feed	78.7 IPM (0.0049 IPT)	
Depth of Cut	Aa = 0.0118", Ar = 0.0472"	
Coolant	Air Blow	
Machine	Horizontal Machining Center (HSK63)	



A Brand AE-BD-H

Advanced Performance Carbide End Mills with DUREOREY Coating for Hardened Steels



A Brand AE-BD-H

Carbide ball end mills for high-precision finishing of high-hardness steel with emphasis on machined surface accuracy. The new DUREOREY coating enables longer tool life in high-hardness steel and is high chipping resistant in work materials exceeding 60 HRC.



Features & Benefits

- **Variable Negative Spiral Gash** Controls chipping while securing cutting quality by making the negative angle weaker near the outer periphery; chipping resistance is enhanced in combination with the weaker helix angle specification.
- **Superior Ball R Precision** Secures stable R accuracy across 180°.
- **Thickness at Center** Thickening of the center core to prevent deformation of the ball tip and improve control of chipping.
- **Superior Shank Accuracy** Supports h4 tolerance (0/-0.004).
- **Ideal for Shrink Fit Holders** Lineup of short-shank type suitable for shrink fit holders.
- **Smooth Surface Treatment** improves surface accuracy by smoothing coating surface.

List Numbers

8410 - A Brand AE-BD-H (Inch)
8510 - A Brand AE-BD-H (Metric)

Size Range

1/32"-1/2"
0.2mm-12mm

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	
P	Medium Carbon Steel : 1035, 1045	
P	High Carbon Steel : 1065	
P	Alloy Steels : 4140, 4340	○
P	Die Steels	○
M	Stainless Steels : 300	
M	Stainless Steels : 400	
M	Stainless Steels : 17-4PH	
K	Cast Iron	
N	Aluminum : 6061, 7075	
N	Aluminum : Casting	
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	
H	Hardened Steels : ~35 HRC	○
H	Hardened Steels : 35-45 HRC	○
H	Hardened Steels : 45-50 HRC	⊗
H	Hardened Steels : 50-70 HRC	⊗

○ good ⊗ best

For more information scan the QR code to the right and visit: osgtool.com/ae-bd-h



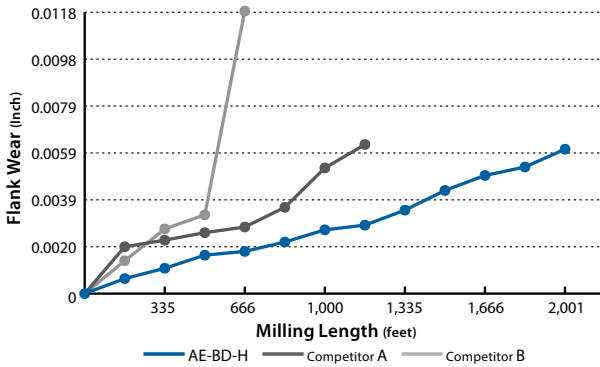
A Brand AE-BD-H

Advanced Performance Carbide End Mills with DUOREY Coating for Hardened Steels

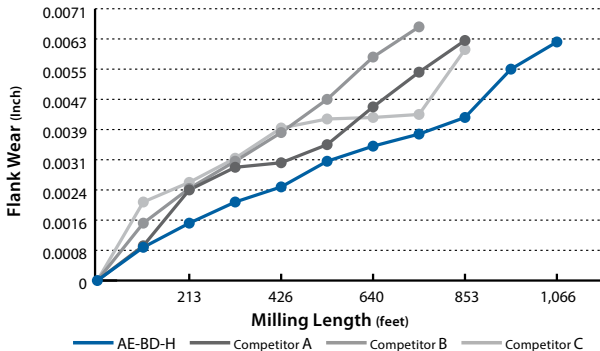
Superior Endurance in High-Hardness Steel

D2 Tool Steel (60 HRC) & M2 High Speed Steel (65 HRC)

Tool	AE-BD-H (10mm)	Competitor
Work Material	D2 Tool Steel (60 HRC)	
Milling Method	Pocketing	
Cutting Speed	490 SFM (4,800 RPM)	
Feed	43.2 IPM (0.0035 IPT)	
Depth of Cut	Aa = 0.0079", Ar = 0.0197"	
Coolant	Air Blow	
Machine	Horizontal Machining Center (HSK63)	



Tool	AE-BD-H (10mm)	Competitor
Work Material	M2 High Speed Steel (65 HRC)	
Milling Method	Pocketing	
Cutting Speed	390 SFM (3,850 RPM)	
Feed	27.6 IPM (0.0035 IPT)	
Depth of Cut	Aa = 0.0079", Ar = 0.0197"	
Coolant	Air Blow	
Machine	Horizontal Machining Center (HSK63)	



A Brand AE-LNBD-H

Advanced Performance Carbide End Mills with DUREOREY Coating for Hardened Steels



A Brand AE-LNBD-H

Carbide ball end mills for high-precision finishing of high-hardness steel with emphasis on machined surface accuracy. The new DUREOREY coating enables longer tool life in high-hardness steel and is high chipping resistant in work materials exceeding 60 HRC.



Features & Benefits

- **Teardrop-shaped Outer Periphery** Strong back taper geometry enables milling by point, which prevents chattering and chipping, resulting in improvement of surface accuracy.
- **Superior Ball R Precision** Secures stable R accuracy across 180°.
- **Thickness at Center** Thickening of the center core to prevent deformation of the ball tip and improve control of chipping.
- **Superior Shank Accuracy** Supports h4 tolerance (0/-0.004).
- **Abundant Variations** 261 items (R0.05 to R3) are available to accommodate a wide range of applications.
- **Smooth Surface Treatment** improves surface accuracy by smoothing coating surface.

List Numbers

8590 - A Brand AE-LNBD-H (Metric)

Size Range

0.1mm-6mm

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	
P	Medium Carbon Steel : 1035, 1045	
P	High Carbon Steel : 1065	
P	Alloy Steels : 4140, 4340	○
P	Die Steels	○
M	Stainless Steels : 300	
M	Stainless Steels : 400	
M	Stainless Steels : 17-4PH	
K	Cast Iron	
N	Aluminum : 6061, 7075	
N	Aluminum : Casting	
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	
H	Hardened Steels : ~35 HRC	○
H	Hardened Steels : 35-45 HRC	○
H	Hardened Steels : 45-50 HRC	⊙
H	Hardened Steels : 50-70 HRC	⊙

○ good ⊙ best

For more information scan the QR code to the right and visit: osgtool.com/ae-lnbd-h



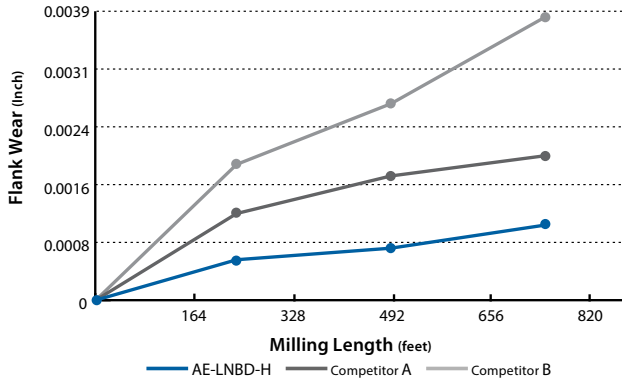
A Brand AE-LNBD-H

Advanced Performance Carbide End Mills with DUOREY Coating for Hardened Steels

Superior Durability & Stable Performance

D2 Tool Steel (60 HRC)

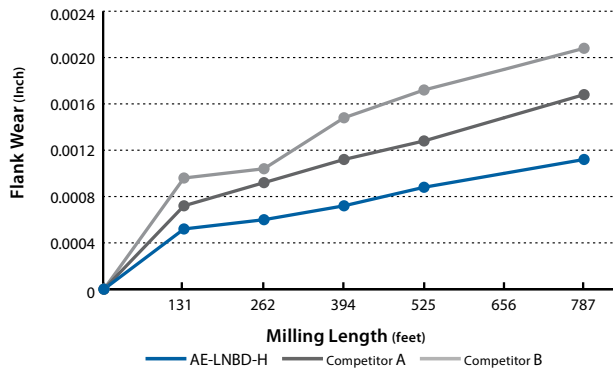
Tool	AE-LNBD-H (2mm x 10mm)	Competitor
Work Material	D2 Tool Steel (60 HRC)	
Milling Method	Contouring	
Cutting Speed	350 SFM (17,000 RPM)	
Feed	55.1 IPM (0.0016 IPT)	
Depth of Cut	Aa = 0.0020", Ar = 0.0039"	
Coolant	Air Blow	
Machine	Vertical Machining Center (HSK32)	



Long Tool Life in Hot Die Steel

DH31S Die Steel (43 HRC)

Tool	AE-LNBD-H (2mm x 10mm)	Competitor
Work Material	DH31S Die Steel (43 HRC)	
Milling Method	Pocketing	
Cutting Speed	290 SFM (14,000 RPM)	
Feed	39.4 IPM (0.0014 IPT)	
Depth of Cut	Aa = 0.0020", Ar = 0.0039"	
Coolant	Air Blow	
Machine	Horizontal Machining Center (HSK63)	



A Brand AE-CPR4-H

Advanced Performance Carbide End Mills with DUREY Coating for Hardened Steels

A Brand AE-CPR4-H

The AE-CPR4-H is a long neck corner radius carbide end mill engineered to achieve high-efficiency and high precision milling in high-hardness steels. All sizes are available in the 4-flute configuration for maximum productivity. OSG's DUREY coating for high-hardness steel is employed with high chipping resistance even for work materials exceeding 60 HRC, enabling long tool life and high-speed machining.



Features & Benefits

- **4-Flute Design** for high efficiency milling.
- **Spiral Shaped Gash** for efficient chip evacuation.
- **Superior R Precision** for outstanding performance in high-hardness steels.

List Numbers

8592 - A Brand AE-CPR4-H (Metric)

Size Range

0.2mm-4mm

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	
P	Medium Carbon Steel : 1035, 1045	
P	High Carbon Steel : 1065	
P	Alloy Steels : 4140, 4340	○
P	Die Steels	○
M	Stainless Steels : 300	
M	Stainless Steels : 400	
M	Stainless Steels : 17-4PH	
K	Cast Iron	
N	Aluminum : 6061, 7075	
N	Aluminum : Casting	
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	
H	Hardened Steels : ~35 HRC	○
H	Hardened Steels : 35-45 HRC	○
H	Hardened Steels : 45-50 HRC	⊗
H	Hardened Steels : 50-70 HRC	⊗

○ good ⊗ best

For more information scan the QR code to the right and visit: osgtool.com/ae-cpr4-h



A Brand AE-CPR4-H

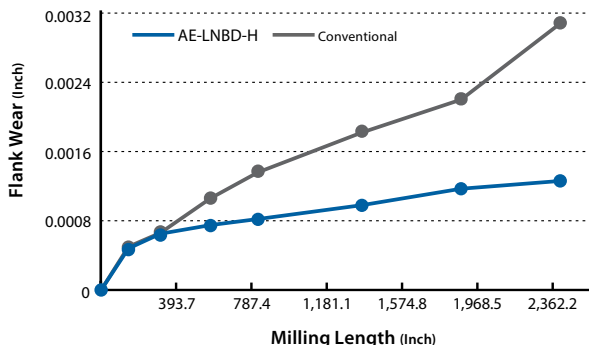
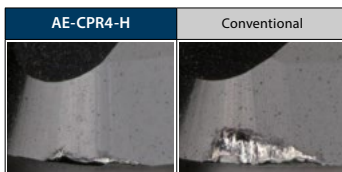
Advanced Performance Carbide End Mills with DUROREY Coating for Hardened Steels

Stable Performance

Highly Efficient and Excellent Durability in High Hardness Steel (D2 Tool Steel 60HRC)

Tool	AE-CPR4-H (Ø2xR0.3x8)	Conventional (2-Flute)
Work Material	D2 Tool Steel (60 HRC)	
Milling Method	Frontal Milling	
Cutting Speed	236 SFM (11,500 RPM)	
Feed	78.8 IPM (0.0017 IPT)	39.4 IPM (0.0017 IPT)
Depth of Cut	Aa = 0.0014", Ar = 0.0189"	
Coolant	Air Blow	
Machine	Vertical Machining Center	

Wear comparison of the cutting edge after milling 2,409.4".

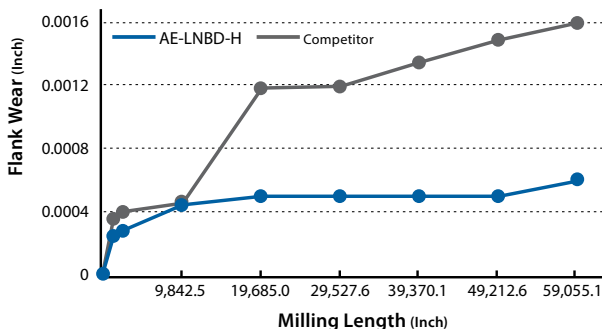


Long Tool Life

Stable Wear Transition in Pre-Hardened Steel 921H (40 HRC)

Tool	AE-CPR4-H (Ø3xR0.5x20)	Competitor
Work Material	921H (40 HRC)	
Milling Method	Frontal Milling	
Cutting Speed	394 SFM (12,730 RPM)	
Feed	70.2 IPM (0.0014 IPT)	
Depth of Cut	Aa = 0.0016", Ar = 0.0289"	
Coolant	Air Blow	
Machine	Vertical Machining Center	

Wear comparison of the cutting edge after milling 59,527.6".



A Brand AE-TL-N

Advanced Performance DLC Coated End Mills for Non-Ferrous Materials



A Brand AE-TL-N

A Brand AE-TL-N are OSG's advanced performance DLC coated carbide end mills for non-ferrous materials. With excellent cutting sharpness, they are able to suppress burrs to achieve excellent surface finish and are extremely effective for non-ferrous materials such as aluminum alloys that require welding resistance and lubricity.



Features & Benefits

- **Center Cutting Edge** Ideal for Plunging.
- **Large Core & New Flute Form** High Rigidity and Excellent chip evacuation.
- **Unique Cutting Edge** Achieves both rigidity and sharpness.
- **DLC Super Hard Coating** For superior surface accuracy.

List Numbers

Size Range

8630 - A Brand AE-TL-N (Inch)
8730 - A Brand AE-TL-N (Metric)

1/8"-1"
3mm-12mm

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	
P	Medium Carbon Steel : 1035, 1045	
P	High Carbon Steel : 1065	
P	Alloy Steels : 4140, 4340	
P	Die Steels	
M	Stainless Steels : 300	
M	Stainless Steels : 400	
M	Stainless Steels : 17-4PH	
K	Cast Iron	
N	Aluminum : 6061, 7075	⊙
N	Aluminum : Casting	⊙
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	
H	Hardened Steels : ~35 HRC	
H	Hardened Steels : 35-45 HRC	
H	Hardened Steels : 45-50 HRC	
H	Hardened Steels : 50-70 HRC	

○ good ⊙ best

For more information scan the QR code to the right and visit: osgtool.com/ae-n



A Brand AE-TL-N

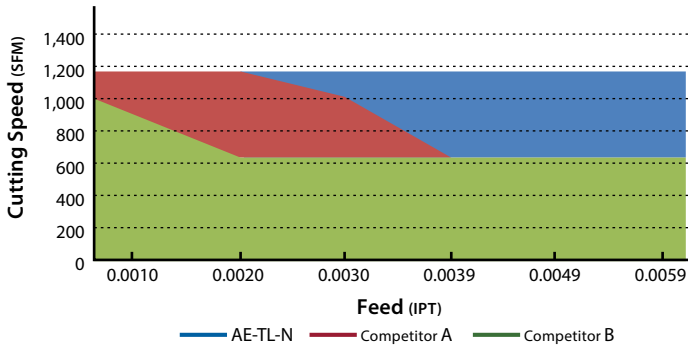
Advanced Performance DLC Coated End Mills for Non-Ferrous Materials

High Efficiency Milling

High Efficiency Even in Slotting with 3D Length of Cut

Tool	AE-TL-N
Size	0.2362" x 0.7087"
Work Material	A7075
Machining Method	Slotting
Depth of Cut	0.2362"
Coolant	Water Soluble

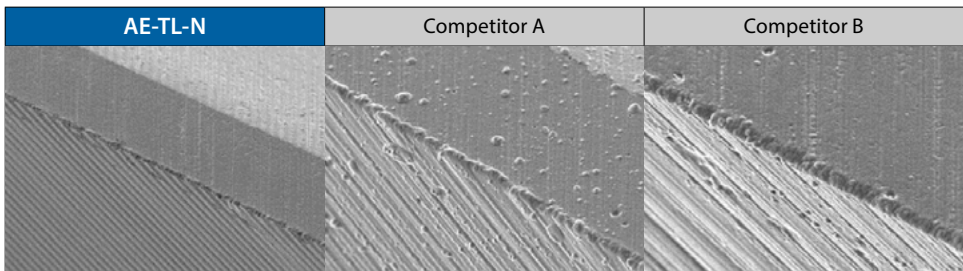
Applicable Cutting Conditions



Superior Surface Accuracy

DLC Super Hard Coating

DLC super hard coating has less droplet comparing to other competitor tool that has coating for non-ferrous material, and it enable the tool to prevent welding achieve better surface finish.



A Brand AE-VTS-N

Advanced Performance DLC Coated End Mills for Non-Ferrous Materials



A Brand AE-VTS-N

A Brand AE-VTS-N are OSG's advanced performance DLC-IGUSS coated carbide end mills for non-ferrous materials. With excellent cutting sharpness, they are able to suppress burrs to achieve excellent surface finish and are extremely effective for non-ferrous materials such as aluminum alloys that require welding resistance and lubricity.



Features & Benefits

- **Flat cutting edge** achieves higher precision machined surface quality.
- **Large core design** High rigidity prevents chattering.
- **Center cutting edge** Can be used for plunging.
- **3 cutting edges at center** For high speed milling.
- **Vibration suppression** Stable and high efficiency milling.

List Numbers

8830 - A Brand AE-VTS-N (Inch)
 8930 - A Brand AE-VTS-N (Metric)
 8870 - A Brand AE-CR-VTS-N (Inch)
 8970 - A Brand AE-CR-VTS-N (Metric)

Size Range

1/8"-1/2"
 1mm-12mm
 1/8"-1/2"
 3mm-12mm

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	
P	Medium Carbon Steel : 1035, 1045	
P	High Carbon Steel : 1065	
P	Alloy Steels : 4140, 4340	
P	Die Steels	
M	Stainless Steels : 300	
M	Stainless Steels : 400	
M	Stainless Steels : 17-4PH	
K	Cast Iron	
N	Aluminum : 6061, 7075	⊙
N	Aluminum : Casting	⊙
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	
H	Hardened Steels : ~35 HRC	
H	Hardened Steels : 35-45 HRC	
H	Hardened Steels : 45-50 HRC	
H	Hardened Steels : 50-70 HRC	

○ good ⊙ best

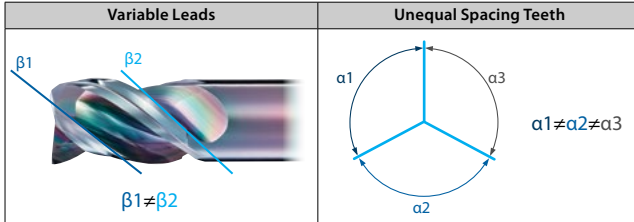
For more information scan the QR code to the right and visit: osgtool.com/ae-vts-n



Stable & High Efficiency Milling

Vibration Suppression

Stable and high efficiency milling is made possible by the suppression of chattering.



Excellent Surface Finish

With DLC Coating and Flat Cutting Edge

Due to the effect of the DLC coating and the flat cutting edge specification, excellent machined surface quality is achieved.

Tool	AE-VTS-N	Competitor
Size	0.1181"	
Work Material	A7075	
Machining Method	Facing	
Cutting Speed	656 SFM (21,000 rpm)	
Feed	124.0 IPM (0.002 IPT)	
Depth of Cut	Aa = 0.0118 • Ar = 0.0945	
Coolant	Water Soluble	

AE-VTS-N (With Wiper)	Competitor A (Without Wiper)	Competitor B (Without Wiper)	Competitor C (Without Wiper)
Rz = 1.37 μm Ra = 0.215 μm	Rz = 12.51 μm Ra = 3.206 μm	Rz = 4.98 μm Ra = 0.967 μm	Rz = 5.97 μm Ra = 1.061 μm

A Brand AE-LNBD-N

Advanced Performance DLC Coated End Mills for Non-Ferrous Materials

A Brand AE-LNBD-N

The AE-LNBD-N high performance DLC coated carbide end mill for non-ferrous materials is suitable for a wide variety of applications with high efficiency and quality. Its DLC-IGUSS coating further improves tool life with excellent welding resistance and lubricity, which is effective in the machining of non-ferrous materials such as aluminum alloys.

CARBIDE	DLC-IGUSS	R ± 0.002	R ± 0.003	R ± 0.004	30°	SHANK h4	SHRINK FIT
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Features & Benefits

- **Teardrop-Shaped Outer Periphery** Prevents Chattering and Chipping.
- **Precise Ball Specifications** Enables High Quality Milling.
- **Strong Back Taper Geometry** Enables Milling by Point Resulting in Improvement of Surface Accuracy.

List Numbers

8990 - A Brand AE-LNBD-N (Metric)

Size Range

0.1mm-6mm

ISO	Work Material	Recommended
P	Low Carbon Steel : 1010, 1018	
P	Medium Carbon Steel : 1035, 1045	
P	High Carbon Steel : 1065	
P	Alloy Steels : 4140, 4340	
P	Die Steels	
M	Stainless Steels : 300	
M	Stainless Steels : 400	
M	Stainless Steels : 17-4PH	
K	Cast Iron	
N	Aluminum : 6061, 7075	⊙
N	Aluminum : Casting	⊙
S	Nickel Alloy : Inconel	
S	Titanium : 6AL4V (30HRC)	
H	Hardened Steels : ~35 HRC	
H	Hardened Steels : 35-45 HRC	
H	Hardened Steels : 45-50 HRC	
H	Hardened Steels : 50-70 HRC	

○ good ⊙ best

For more information scan the QR code to the right and visit: osgtool.com/ae-lnbd-n



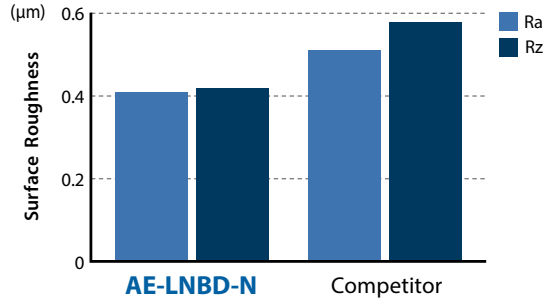
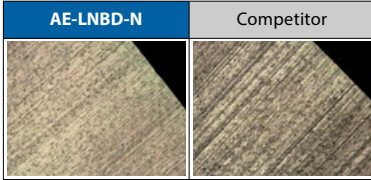
A Brand AE-LNBD-N

Advanced Performance DLC Coated End Mills for Non-Ferrous Materials

High Quality Milling

Precise Ball Specifications that Enable High Quality Milling

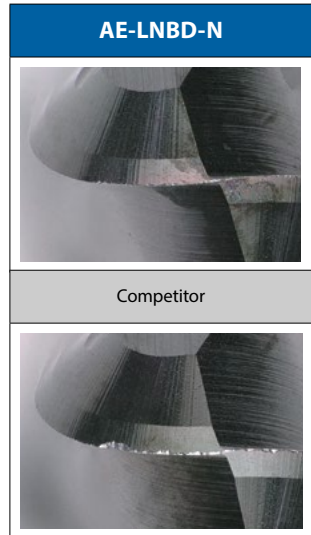
- Optimal cutting edge shape for milling copper alloy
- Superior Ball R Precision
- High Quality Primary Relief Surface



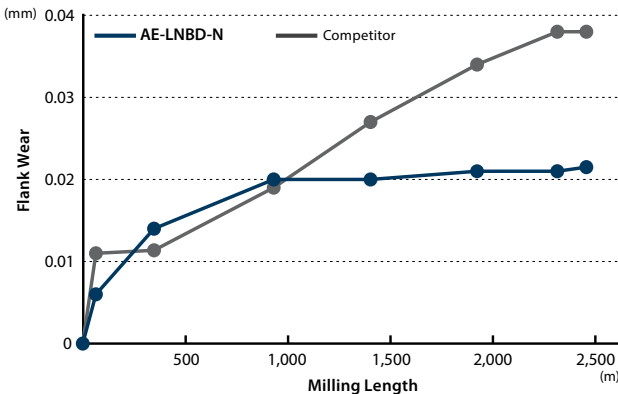
Long Tool Life

DLC-IGUSS Coating Enables Consistent Tool Wear

Tool	AE-LNBD-N	Competitor
Size	R1 x 10 x 4	
Work Material	C1100	
Machining Method	Pick Milling	
Cutting Speed	413 SFM (20,000 RPM)	
Feed	79 IPM (0.002 IPT)	
Depth of Cut	Aa = 0.2mm (0.1D) Ar = 0.4mm (0.2D)	
Coolant	Water Soluble	
Machine	Vertical Machining Center (BT40)	



Wearing condition of ball flank after milling 2,480m.





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