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OSG's A Brand® Tap Lineup

Vol 2

A-TAPS

A-NPT • A-LT-NPT • A-BSPP • A-BSPT • A-NPS • AT-1 • A-CSF • A-CHT • A-SFT
A-OIL-SFT • A-LT-SFT • A-POT • A-OIL-POT • A-LT-POT



A-Taps

Taps Designed with A Brand Values in Mind

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A Brand® AT-1



A Brand® A-SFT

The A Brand Story

The joy of delivering new values

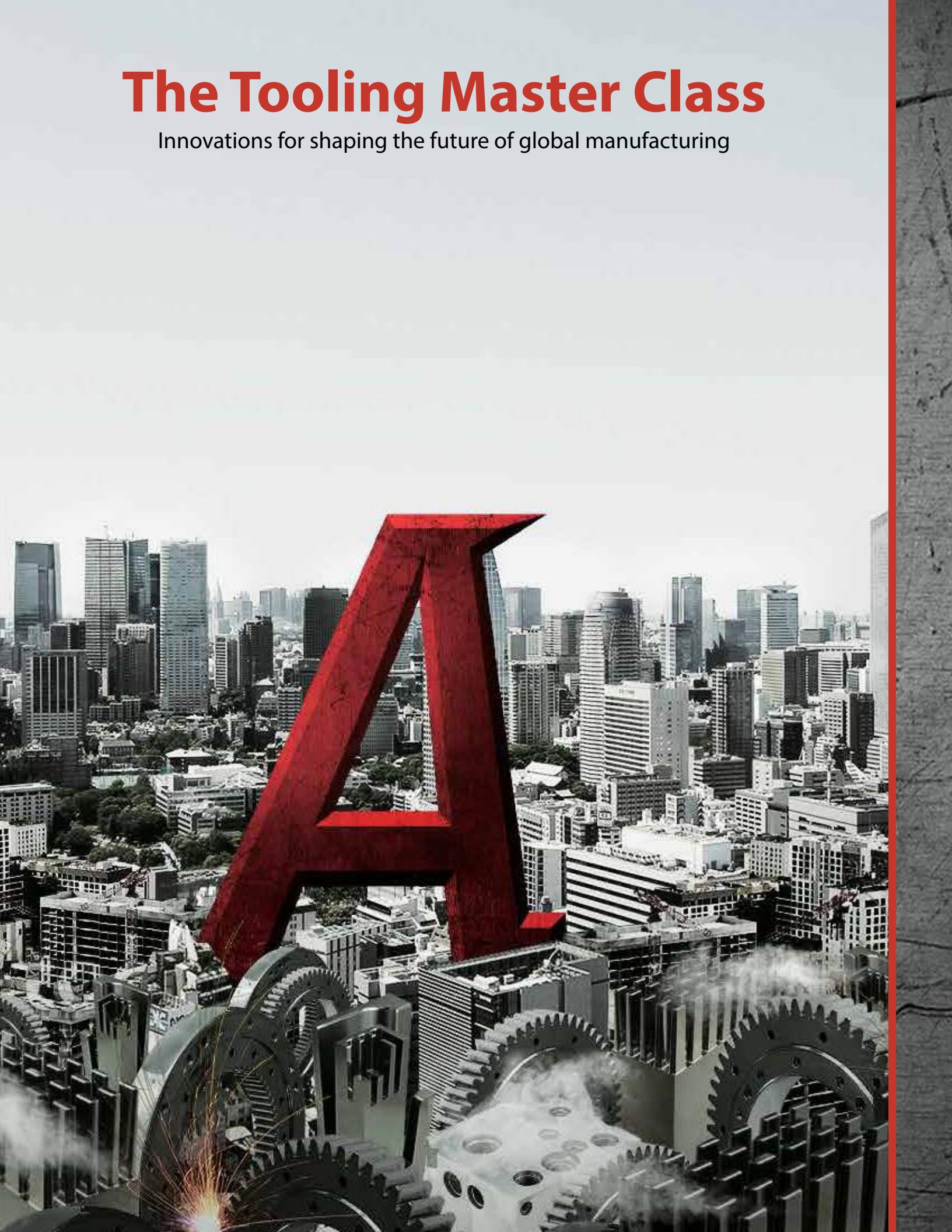
The A Brand represents a new evolution in cutting tool technology. With a commitment to only the best, the A Brand emanates innovations essential for shaping the future of global manufacturing. The A Brand is not only a premium tooling brand, it also represents the quality assurance OSG guarantees to 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.



The Tooling Master Class

Innovations for shaping the future of global manufacturing



The A Brand

The Tooling Master Class

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.

To better accommodate evolving manufacturing needs, the A Brand offering has been expanded. Whether you are looking for better tools or need assistance in choosing the right tool, give one of the A Brand products a try. You will experience a level of quality, reliability and satisfaction that can only be delivered by the A Brand tooling master class.

A-DRILL



A Brand® ADO-TRS 3D & 5D



A Brand® ADF • ADFO • ADFL



A Brand® ADO 3-30D



A Brand® AD 2D & 4D



A Brand® ADO-SUS 3D, 5D & 8D



A Brand® AD-LDS

A-TAP



A Brand® AT-1



A Brand® A-CSF



A Brand® A-CHT



A Brand® A-SFT • A-OIL-SFT • A-LT-SFT



A Brand® A-POT • A-OIL-POT • A-LT-POT



A Brand® A-NPT • A-LT-NPT • A-BSPP • A-BSPT • A-NPS

A-END MILL

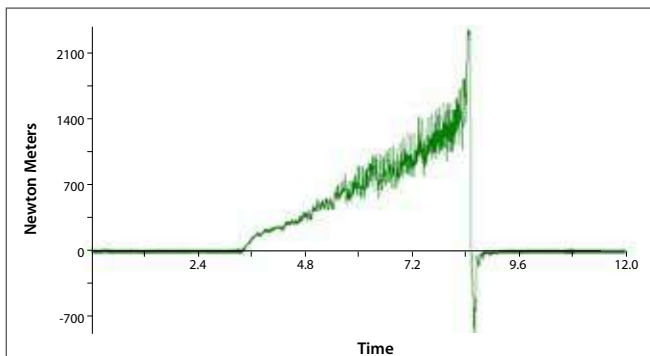
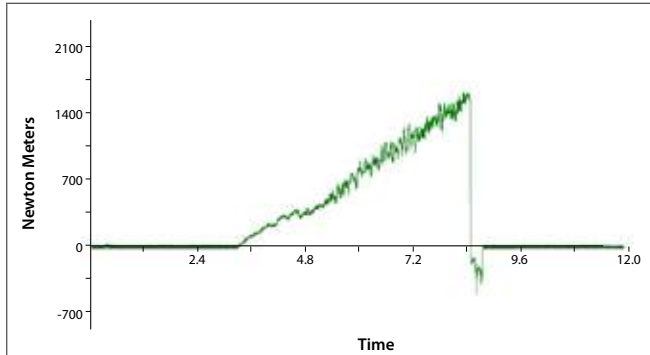


A Brand® AE-VMS

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.



Interrupted Thread
for reduced cutting torque

Variable Lead Flute
accelerates chip evacuation

Enhanced Cutting Geometry
to eliminate galling

V Coating
for exceptional wear resistance

HSSE Substrate
for high wear resistance and toughness

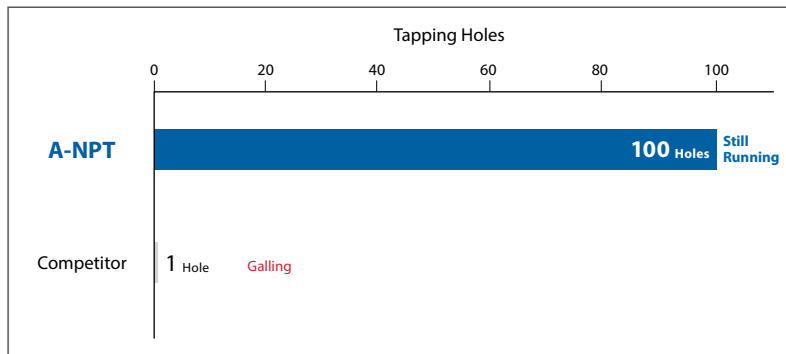


Processing with Taper Pipe Taps

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



Minimal Wear in Multiple Materials

A36 Steel • Cast Iron • 304 Stainless Steel

The A-NPT showed minimal wear and can continue to be used even after successfully tapping 100 holes in various work materials.

Tool	A-NPT		
Tool Size	PT 1/8-28 2.5P		
Work Material	A36 Steel	Cast Iron	304 Stainless Steel
Pre-Drilled Hole	Ø0.32" x 0.62" (Through)		
Gage Plane	0.51"		
Cutting Speed	16 SFM (190 RPM)		
Coolant	Water-soluble Chlorine-Free (10%)		
Machine	Vertical Machining Center		



A36 Steel



Cast Iron



304 Stainless Steel

List 16570

A-NPT, Interrupted



Units: Inch

Size	Number of Flutes	EDP Number	Overall Length	Length of Cut	Neck Length	Shank Diameter	Square Width	Square Length
		NPT						
		V						
1/16 - 27	3	1657001008	3.543	0.689	1.417	0.313	0.234	0.374
1/8 - 27 (Sm. Shk)		1657002008		0.752				
1/8 - 27 (Lg. Shk)		1657003008						
1/4 - 18	4	1657004008	3.937	1.063	1.929	0.563	0.421	0.437
3/8 - 18		1657005008			1.969	0.700	0.531	0.500
1/2 - 14		1657006008	4.921	1.374	2.362	0.688	0.515	0.626
3/4 - 14		1657007008	5.511		2.913	0.906	0.679	0.689
1 - 11.1/2		1657008008	6.299		3.150	1.125	0.843	0.811

Packed: 1 pc.

Available in V coating only.



Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	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 1018	1035 1045	1065			4140 4340											
16570	☒	☒	☒	☒	☐	☐	☐		☐		☒		☐	☒			
SFM	5-35	5-35	5-35	5-20	5-20	5-20	5-20		5-20		5-35		5-10	5-20			

☐ good ☒ best



List 16575

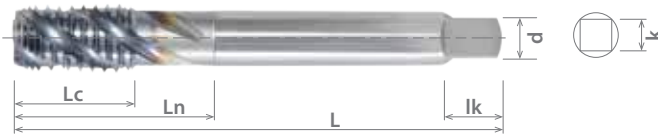
A-LT-NPT, Long Shank, NPT, Interrupted

NEW

HSSE

V

40°



Units: Inch

Size	Number of Flutes	EDP Number	Overall Length	Length of Cut	Neck Length	Shank Diameter	Square Width	Square Length
		NPT						
		V	L	Lc	Ln	d	k	lk
1/16 - 27	3	1657501008	4.000	0.689	1.614	0.313	0.234	0.374
		1657502008	6.000		2.402			
1/8 - 27 (Sm. Shk)		1657503008	4.000	0.752	1.614			
		1657504008	6.000		2.402			
1/8 - 27 (Lg. Shk)		1657505008	4.000		1.614			
		1657506008	6.000	2.402	0.438	0.328		
1/4 - 18	4	1657507008	4.000	1.063	1.929	0.563	0.421	0.437
		1657508008	6.000		2.402			
3/8 - 18		1657509008	4.000		1.969	0.700	0.531	0.500
		1657510008	6.000		2.402			
1/2 - 14		1657511008	4.000	1.374	2.362	0.688	0.515	0.626
		1657512008	6.000		2.402			
3/4 - 14		1657513008	4.000		2.504	0.906	0.679	0.689
		1657514008	6.000	2.913				
1 - 11,1/2		1657515008	4.000	1.752	2.504	1.125	0.843	0.811
		1657516008	6.000		3.150			

Packed: 1 pc.

Available in V coating only.

ATP

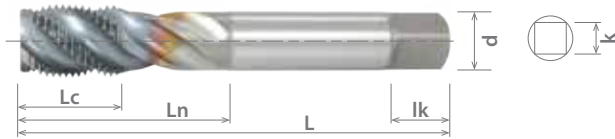
Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
	1010	1035	1065	4140	4340												
	1018	1045															
16575	☐	☐	☐	☐	☐	☐	☐		☐		☐		☐	☐			
SFM	5-35	5-35	5-35	5-20	5-20	5-20	5-20		5-20		5-35		5-10	5-20			

☐ good ☐ best

List 16590

A-NPS

NEW	HSSE	V	40°
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Units: Inch

Size	Number of Flutes	EDP Number	Overall Length	Length of Cut	Neck Length	Shank Diameter	Square Width	Square Length
		NPS						
		V						
1/16 - 27	3	1659001008	3.543	0.551	1.417	0.313	0.234	0.374
1/8 - 27 (Sm. Shk)		1659002008			1.457			
1/8 - 27 (Lg. Shk)		1659003008						
1/4 - 18	4	1659004008	3.937	0.748	1.929	0.563	0.421	0.437
3/8 - 18		1659005008		0.827	1.969	0.700	0.531	0.500
1/2 - 14		1659006008	4.921	1.024	2.362	0.688	0.515	0.626
3/4 - 14		1659007008	5.511	1.102	2.913	0.906	0.679	0.689
1 - 11,1/2		1659008008	6.299	1.299	3.150	1.125	0.843	0.811

Packed: 1 pc.
Available in V coating only.



Work Material																			
List No.	P					M			K	N		S		H					
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels					
	Low	Med.	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 1018	1035 1045	1065			4140 4340													
16590	☒	☒	☒	☒	☐	☐	☐		☐		☒		☐	☒					
SFM	5-35	5-35	5-35	5-20	5-20	5-20	5-20		5-20		5-35		5-10	5-20					

☐ good ☒ best



List 16585

A-BSPT, Interrupted Thread



Units: Inch

Size	Number of Flutes	EDP Number	Overall Length L	Length of Cut Lc	Neck Length Ln	Shank Diameter d	Square Width k	Square Length Ik
		NPT						
		V						
1/8 - 28	3	1658501008	3.543	0.591	1.457	0.313	0.234	0.374
1/4 - 19		1658502008	3.937	0.748	1.929	0.563	0.421	0.437
3/8 - 19		1658503008		0.827	1.969	0.700	0.531	0.500
1/2 - 14	4	1658504008	4.921	1.024	2.362	0.688	0.515	0.626
3/4 - 14		1658505008	5.511	1.102	2.913	0.906	0.679	0.689
1 - 11		1658506008	6.299	1.299	3.150	1.125	0.843	0.811

Packed: 1 pc.
Available in V coating only.



Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	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 1018	1035 1045	1065			4140 4340											
16585	☒	☒	☒	☒	☐	☐	☐		☐		☒		☐	☒			
SFM	5-35	5-35	5-35	5-20	5-20	5-20	5-20		5-20		5-35		5-10	5-20			

☐ good ☒ best



List 16580

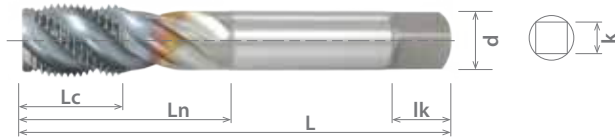
A-BSPP

NEW

HSSE

V

40°



Units: Inch

Size	Number of Flutes	EDP Number	Overall Length L	Length of Cut Lc	Neck Length Ln	Shank Diameter d	Square Width k	Square Length Ik
		NPT						
		V						
1/8 - 28	3	1658001008	3.543	0.591	1.457	0.313	0.234	0.374
1/4 - 19		1658002008	3.937	0.748	1.929	0.563	0.421	0.437
3/8 - 19		1658003008		0.827	1.969	0.700	0.531	0.500
1/2 - 14	4	1658004008	4.921	1.024	2.362	0.688	0.515	0.626
3/4 - 14		1658005008	5.511	1.102	2.913	0.906	0.679	0.689
1 - 11		1658006008	6.299	1.299	3.150	1.125	0.843	0.811

Packed: 1 pc.

Available in V coating only.

ATP

Work Material																			
List No.	P					M			K	N		S		H					
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels					
	Low	Med.	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 1018	1035 1045	1065			4140 4340													
16580	☐	☐	☐	☐	☐	☐	☐		☐		☐		☐	☐					
SFM	5-35	5-35	5-35	5-20	5-20	5-20	5-20		5-20		5-35		5-10	5-20					

☐ good ☐ best

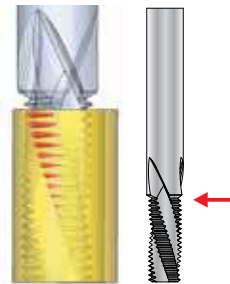


1-Pass Cutting

Left Hand Helix Reduces Deflection for 1-Pass Cutting

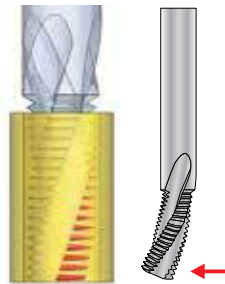
The AT-1 is designed with a left hand helix and starts cutting from the shank side, reducing deflection, preventing bending, thus allowing for 1-pass cutting and reducing overall cutting time.

AT-1 Left Hand Helix



Starts cutting from the shank side
Result: Reduced deflection
Note: Climb milling recommended

Conventional Right Hand Helix



Starts cutting from the tip
Result: Big deflection

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	



AT-1
1-Pass



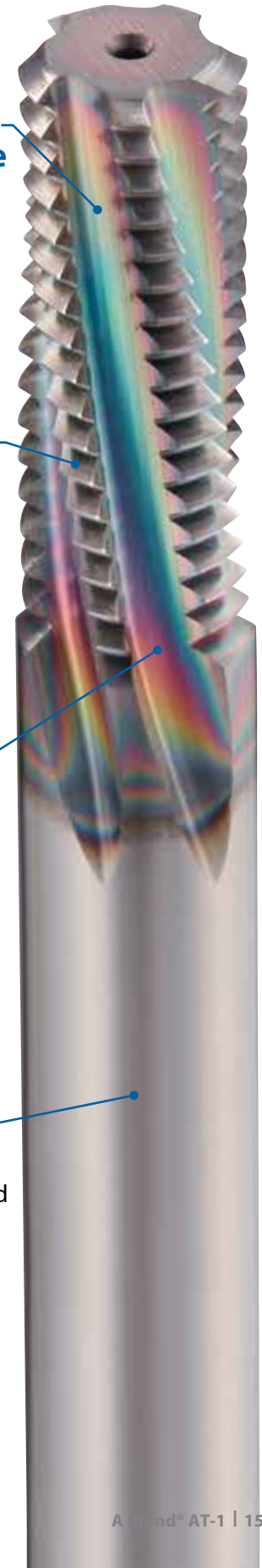
Conventional
2-Pass

**Unequal Spacing/
Variable Lead Flute**
for reduced vibration

**Right-Hand Cut &
Left-Hand Helix
Geometry**
increases tool stability

EgiAs Coating
for exceptional wear
resistance

**Ultra-Fine Grain
Carbide**
for high wear resistance and
toughness



Effects of Left-Hand Helix

Alloy Steel (4140)

The AT-1 threadmill is designed with a left-hand helix for a small pitch diameter difference between the hole entry and the bottom of the hole, allowing a delay in gauge-out failure. Longer tool life can be achieved with elimination of “zero cutting” for correcting bending.

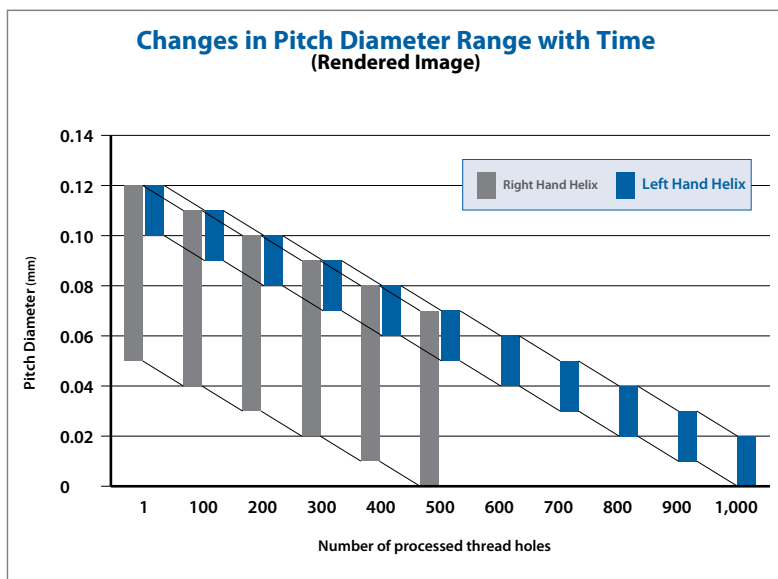
Tool	AT-1 (List 16620)	Conventional
Size	Ø7.7mm • 22mm Length of Cut	
Thread Size	M10 x 1	
Work Material	4140 Alloy Steel	
Tapping Depth	15mm (Blind)	
Cutting Speed	328 SFM (4,136 RPM)	
Feed	15 IPM (0.0009 IPT)	
Number of Passes	1	
Coolant	Water-Soluble	
Machine	Vertical Machining Center	

Right & Left-Hand Helix Comparison Internal Thread Pitch Dia. at Initial Cutting Stage

Unit: mm

	Hole Entry	Inner Hole Area	Dia. Difference
Right-Hand Helix	+0.120 ~ +0.140	+0.040 ~ +0.060	0.060 ~ 0.100
Left-Hand Helix	+0.120 ~ +0.140	+0.120 ~ +0.140	0 ~ 0.020

Pitch Diameter Measurement Method: Step Gauge

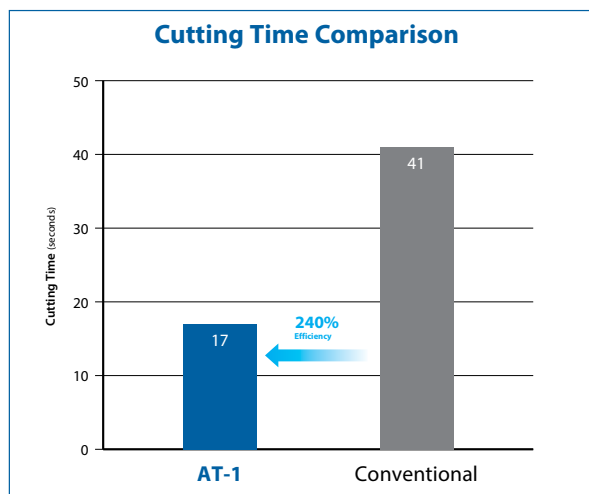


Twice as Fast as Conventional Threadmills

304 Stainless Steel

When processing the same number of thread holes, the AT-1 completed the job in less than half the time of the conventional tool.

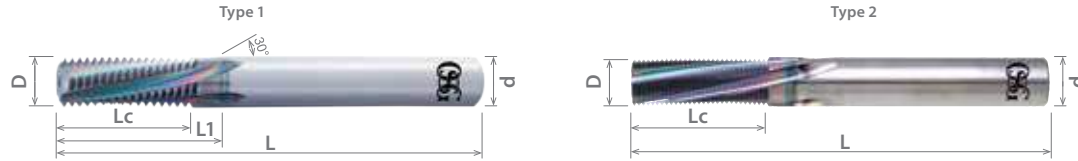
Tool	AT-1 (List 16620)	Conventional
Size	Ø9.7mm • 27mm Length of Cut	
Thread Size	M12 x 1.5	
Work Material	304 Stainless Steel	
Tapping Depth	22.5 mm (Through Hole)	
Cutting Speed	328 SFM (3,283 RPM)	393 SFM (4,021 RPM)
Feed	0.49 IPM (0.0004 IPT)	1.65 IPM (0.0004 IPT)
Number of Passes	1	2
Coolant	Water-Soluble	
Machine	Vertical Machining Center	



List 16625

AT-1, Helical Flute

SPEED FEED	CARBIDE	EgiAs	11°	SHANK h6
P21				



Units: Inch

Size	Threads Per Inch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number
		D	L	Lc	L1	d			EgiAs
1/4	20	0.179	3.000	0.600	0.700	1/4	4	1	1662500017
	28			0.607	0.680				1662500117
	32			0.563	0.625				1662500217
5/16	18	0.224		0.778	0.889				1662500317
	24			0.750	0.833				1662500417
	32			0.688	0.750				1662500517
3/8	16	0.264	3.500	0.875	1.000	5/16		1662500617	
	24			0.958	1662500717				
	32			0.813	0.875			1662500817	
7/16	14	0.303		1.071	-			2	1662500917
	20			1.000	-				1662501017
	28			0.964	-				1662501117
1/2	13	0.343		1.154	1.308	3/8	5	1	1662501217
	20			1.100	1.200				1662501317
	28			1.107	1.178				1662501417
9/16	12	0.382		1.333	1.500	1/2			1662501517
	18			1.278	1.389				1662501617
	24			1.250	1.333				1662501717
5/8	11	0.421	1.454	1.636	5/8				1662501817
	18		1.389	1.500					1662501917
	24		1.374	1.458					1662502017
3/4	10	0.461	1.700	1.900		3/4			1662502117
	16		1.626	1.750					1662502217
	20		1.600	1.700					1662502317
7/8	9	0.539	2.000	2.222	5/8				1662502417
	14		1.928	2.071					1662502517
	20		1.850	1.950					1662502617
1	8	0.736	2.250	2.500	3/4	6			1662502717
	12		2.167	2.334					1662502817
	20		2.100	2.200					1662502917

Packed: 1 pc.
Available in EgiAs coating only.
For internal threads only.



For more information on thread mill applications, including ThreadPro software, visit: www.osgtool.com/ThreadPro.

Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	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															
16625	☒	☒	☒	☒		☒	☐	☐	☒	☒	☒			☒	☒		

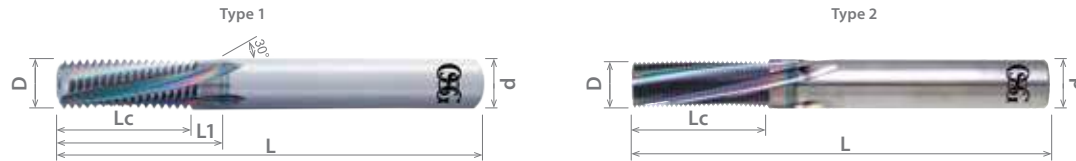
☐ good ☒ best



List 16620

AT-1, Helical Flute

SPEED FEED P21	CARBIDE	EgiAs	11°	SHANK h6
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Units: mm

Size	Pitch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number	
		D	L	Lc	L1	d			EgiAs	
M6	1.00	4.50	75.00	14.00	16.00	6.00	4	1	8331001	
	0.75			13.50					8331000	
M8	1.25	5.70	75.00	18.75	-			8.00	2	8331004
	1.00			18.00	-					8331003
M10	1.50	7.70	85.00	24.00	-	8331007				
	1.25			22.50	-	8331006				
	1.00			22.00	-	8331005				
M12	1.75	9.70	100.00	28.00	-	10.00	5	8331011		
	1.50			27.00	-			8331010		
	1.25			27.50	-			8331009		
	1.00			26.00	-			8331008		
M14	2.00	9.70	100.00	32.00	-	12.00		2	8331016	
	1.50	10.70	120.00	31.50	34.50				1	8331015
M16	2.00	11.70		120.00	36.00	-			2	8331019
	1.50	13.70	135.00		39.00	16.00			1	8331018
M18	2.50	11.70	120.00	42.50	-	12.00			2	8331020
M20	2.50	13.70	135.00	45.00	50.00	16.00			6	1
	1.50	15.70		43.50	-		2			8331021
M24	3.00	19.70	150.00	54.00	-	20.00	2			8331025
	2.00			52.00	-					8331024

Packed: 1 pc.
Available in EgiAs coating only.
For internal threads only.

ATP

For more information on thread mill applications, including ThreadPro software, visit: www.osgtool.com/ThreadPro.



Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	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 1018	1035 1045	1065			4140 4340	300	400		17-4 PH	6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC
16620	☐	☐	☐	☐		☐	☐	☐	☐	☐	☐			☐	☐		

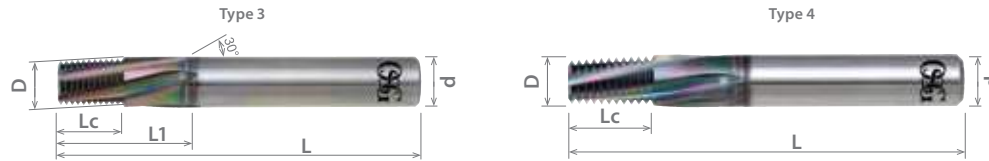
☐ good ☐ best



List 16630

AT-1, NPT

SPEED FEED P21	CARBIDE	EgiAs	11°	SHANK h6
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Units: Inch

Size	Threads Per Inch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number
		D	L	Lc	L1	d			EgiAs
1/16 or 1/8	27	0.223	3.000	0.407	0.480	1/4	4	3	1663000017
1/8		0.302	3.500		-	5/16		4	1663000117
1/4 or 3/8	18	0.381		0.611	0.720	1/2	5	3	1663000217
3/8		0.461	4					1663000317	
1/2 or 3/4	14	0.617	4.000	0.786	-	5/8	6	4	1663000417
1 thru 2	11-1/2	0.737		0.957	-	3/4		1663000517	

Packed: 1 pc.
Available in EgiAs coating only.
For internal and external threads.

ATP

For more information on thread mill applications, including ThreadPro software, visit: www.osgtool.com/ThreadPro.



Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	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 1018	1035 1045	1065			4140 4340											
16630	☐	☐	☐	☐		☐	☐	☐	☐	☐	☐			☐	☐		

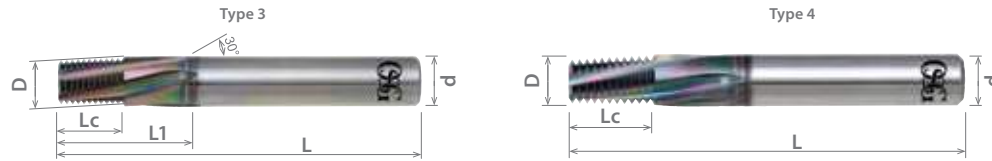
☐ good ☒ best



List 16631

AT-1, NPTF

SPEED FEED P21	CARBIDE	EgiAs	11°	SHANK h6
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Units: Inch

Size	Threads Per Inch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number
		D	L	Lc	L1	d			EgiAs
1/16 or 1/8	27	0.223	3.000	0.407	0.480	1/4	4	3	1663100017
1/8		0.302	3.500		-	5/16		4	1663100117
1/4 or 3/8	18	0.381		0.611	0.720	1/2	5	3	1663100217
3/8		0.459						1663100317	
1/2 or 3/4	14	0.617		4.000	0.786	-	5/8	4	1663100417
1 thru 2	11-1/2	0.737	0.957		-	3/4	6		1663100517

Packed: 1 pc.

Available in EgiAs coating only.

For internal and external threads.



For more information on thread mill applications, including ThreadPro software, visit: www.osgtool.com/ThreadPro.



Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	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 1018	1035 1045	1065			4140 4340											
16631	☒	☒	☒	☒		☒	☐	☐	☒	☒	☒			☒	☒		

☐ good ☒ best



List 16620/16625 - A Brand® AT-1: **Inch/Metric**

List 16630/16631 - A Brand® AT-1: **NPT/NPTF**

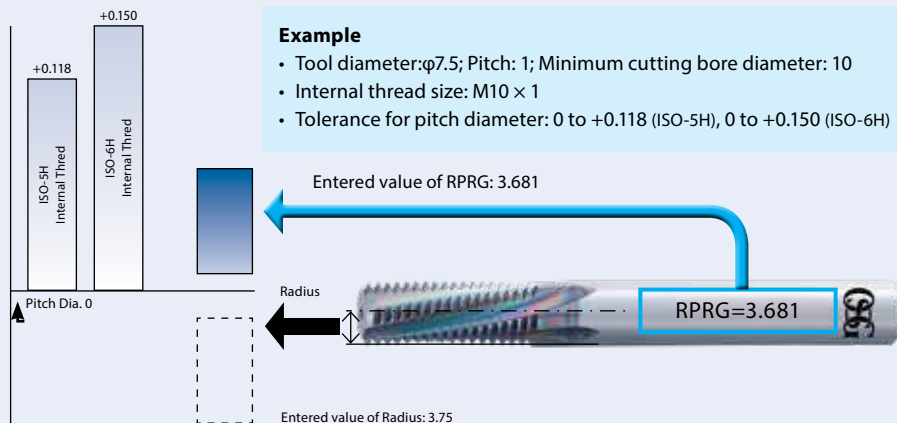
Work Material		Cutting Speed SFM	Feed Rate (in/t)
Low Carbon Steel	~C0.25%	260 - 790	0.0004 - 0.002
Medium Carbon Steel	C0.25%~0.45%	260 - 790	0.0004 - 0.002
High Carbon Steel	C0.45%~	260 - 790	0.0004 - 0.002
Alloy Steel	SCM	200 - 650	0.0004 - 0.002
Hardened Steel	25-45 HRC	260 - 650	0.0004 - 0.002
	45-55 HRC	-	-
	50-60 HRC	-	-
Stainless Steel	SUS	200 - 790	0.0004 - 0.002
Tool Steel	SKD	-	-
Cast Steel	SC	200 - 790	0.0004 - 0.002
Cast Iron	FC	260 - 790	0.0004 - 0.002
Ductile Cast Iron	FCD	200 - 790	0.0004 - 0.002
Copper	Cu	260 - 790	0.001 - 0.004
Brass	Bs	260 - 790	0.001 - 0.004
Brass Casting	BsC	260 - 790	0.001 - 0.004
Bronze	PB	260 - 790	0.001 - 0.004
Aluminum	Al	260 - 790	0.001 - 0.004
Aluminum Alloy Casting	AD, ADC	330 - 1000	0.002 - 0.008
Magnesium Alloy Casting	MC	330 - 1000	0.002 - 0.008
Zinc Alloy Casting	ZDC	330 - 1000	0.002 - 0.008
Titanium Alloy	Ti-6Al-4V	-	-
Nickel Alloy	Inconel	-	-
Thermosetting Plastic	-	260 - 650	0.001 - 0.004
Thermo Plastic	-	260 - 650	0.001 - 0.004

1. The indicated speeds and feeds are for water-soluble coolant.
2. Water-soluble coolant is not suitable for threading magnesium alloy.
3. Please adjust the cutting conditions depending on the rigidity of the machine, tool holders, and workpiece clamping.
4. If the threading length is long, or when machining a large-pitch thread, reduce the feed rate and take multiple passes.
5. If a machined parallel internal thread is tapered and prevents the go-gauge from going through, add a zero cut/spring pass.

Radius Offset (RPRG)

RPRG is the reference value of tool radius offset.

Conventionally, the tool radius was entered during setup as a parameter of the NC system, which was corrected by checking the thread with a gauge. However, it has become possible to reduce the checking and correction simply by entering the RPRG value indicated on the tool shank.



NOTES:

1. RPRG are reference values. Determine optimal values after trial cutting as values depend on machining environment.
2. RPRG values are optimally established to achieve ISO:5H (formerly Grade 1) internal thread limits for metric threads and ANSI:3B internal thread limits for unified threads. RPRG values established for taper pipes (R/Rc) are effective when using the thread milling NC code generator software ThreadPro available on our website.
3. For diameters of thread mills, RPRG values are calculated based on the minimum cutting bore diameter (the minimum cutting internal thread size of the tool diameter). To cut other diameters, it is necessary to use a smaller value than RPRG.

ThreadPro (Thread Milling NC Code Generator Software)

www.osgtool.com/threadpro



- Available in 12 different languages
- Supports 8 NC programming languages
- Incorporates RPRG* value to further simplify process

* RPRG = reference value of tool radius offset



ThreadPro

Powered by
AUTODESK

Larger Coolant Hole

1.3 Times More Coolant Flow

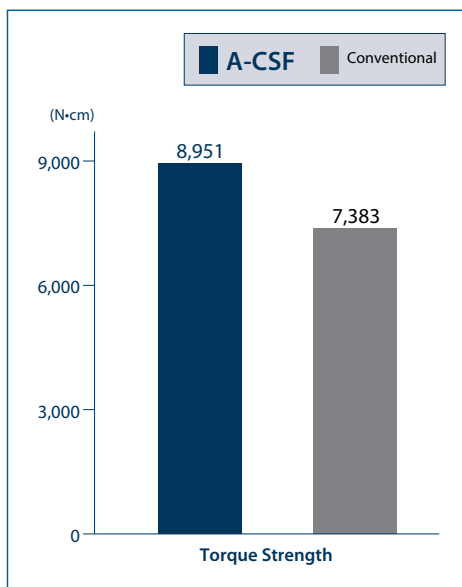


Larger Oil Hole Design
for excellent coolant flow

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

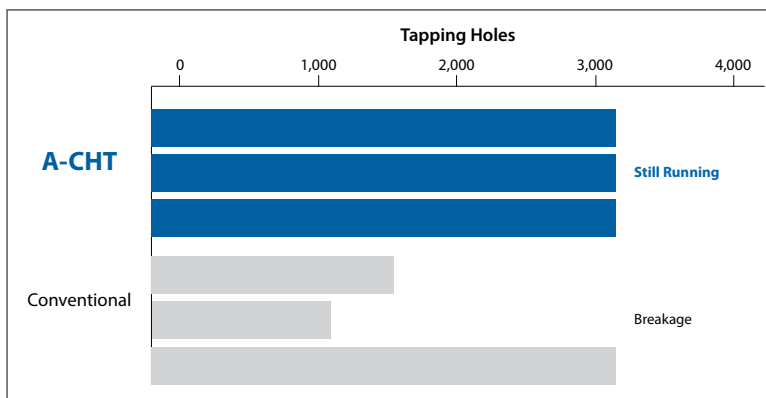
Bright
for greater performance
in non-ferrous materials.

Ultra-Fine Grain Carbide
for high wear resistance
and toughness

Stable and Consistent Performance

Stable Machining in Ductile Cast Iron

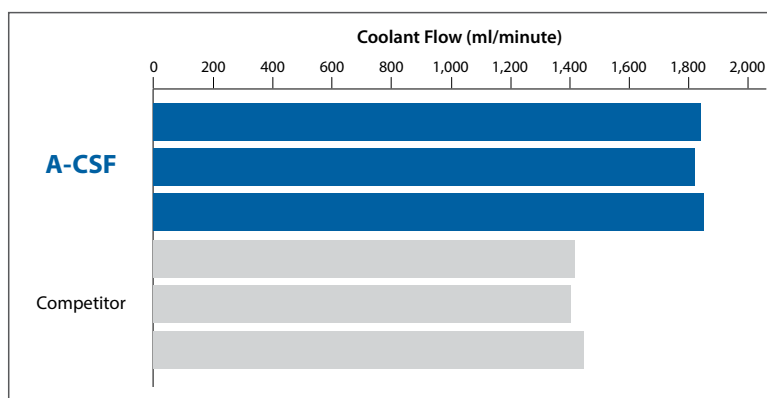
Tool	A-CHT	Conventional
Size	ØM6 x 1	
Drill Hole Size	Ø5mm x 15mm (Blind)	
Work Material	Ductile Cast Iron	
Tapping Depth	12mm (2xD)	
Cutting Speed	100 SFM (1,600 RPM)	
Coolant	Water Soluble Chlorine-Free (10%) (Internal)	
Machine	Horizontal Machining Center (Synchronized)	



Exceptional Coolant Flow

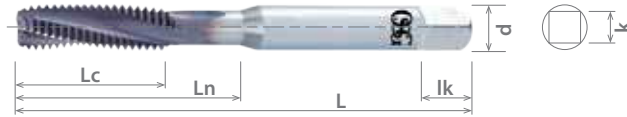
Coolant Flow Amount by Time

Tool	A-CSF	Competitor
Size	ØM6 x 1	
Spindle Speed	61 SFM (1,000 RPM)	
Coolant	Water Soluble Chlorine-Free (10%)	
Coolant Pressure	1 MPa	
Time Run	60 Seconds	



List 16605

A-CSF, Coolant - Through, DIN Overall Length, Modified Bottom (2.5P), Bottom (1.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number		DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P)	Mod Bottom (2.5P)						
			Bright	Bright						
1/4 - 20 UNC	H5	3	1660500100	1660500000	3.140	0.598	1.181	0.255	0.191	0.313
1/4 - 28 UNF	H4		1660500300	1660500200						
5/16 - 18 UNC	H5		1660500500	1660500400	3.540	0.665	1.377	0.318	0.238	0.375
3/8 - 16 UNC			1660500700	1660500600	3.930	0.751		0.381	0.286	0.438
7/16 - 14 UNC			1660500900	1660500800	0.858	-		0.322	0.242	0.406
1/2 - 13 UNC			1660501100	1660501000	4.330	0.921		-	0.367	0.275

Packed: 1 pc.

EDP's listed above are stocked standard, other coatings available upon request.

Specify treatment at time of order.

Note: Reduce SFM 50% - 70% while using external coolant.

ATP

Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
	1018	1035 1045	1065			4140 4340											
16605									☐	☐	☐						
SFM									15-50	30-330	30-330						

☐ good ☐ best

A Brand® A-CSF & A-CHT

Advanced Performance Carbide Coolant-Through Taps for Cast Iron and Aluminum Alloy

List 16600

A-CSF, Coolant - Through, DIN Overall Length, Modified Bottom (2.5P), Bottom (1.5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number		DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P)	Mod Bottom (2.5P)						
			Bright	Bright						
M5 x 0.8	D4	3	1660000000	1660000100	70.00	10.00	25.00	4.928	3.86	6.4
M6 x 1.0	D5		1660000200	1660000300	80.00	12.00	31.00	6.477	4.85	7.9
M8 x 1.25			1660000400	1660000500	90.00	15.00	35.00	8.077	6.05	9.5
M10 x 1.5	D6		1660000600	1660000700	100.00	18.00	39.00	9.677	7.26	11.1
M10 x 1.25	D5		1660000800	1660000900						
M12 x 1.75	D6		1660001000	1660001100	110.00	21.00	-	9.322	6.98	

Packed: 1 pc.

EDP's listed above are stocked standard, other coatings available upon request.

Specify treatment at time of order.

Note: Reduce SFM 50% - 70% while using external coolant.

ATP

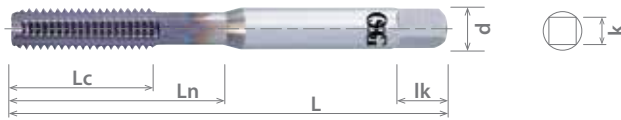
Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
	1010 1018	1035 1045	1065			4140 4340											
16600									☐	☐	☐						
SFM									15-50	30-330	30-330						

☐ good ☐ best



List 16615

A-CHT, Coolant-Through, DIN Overall Length, Bottom (1.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	
			Bottom (1.5P)							
			Bright	L	Lc	Ln	d	k	lk	
12 - 24 UNC	H3	3	1661500200	3.150	0.500	0.945	0.220	0.165	0.281	
12 - 28 UNF			1661500300							
1/4 - 20 UNC			H5		1661500400	0.598	1.181	0.255	0.191	0.313
1/4 - 28 UNF			H4		1661500500					
5/16 - 18 UNC	H5	4	1661500600	3.543	0.665	1.378	0.318	0.238	0.375	
5/16 - 24 UNF	H4		1661500700							
3/8 - 16 UNC	H5		1661500800	3.937	0.752		0.381	0.286	0.438	
3/8 - 24 UNF	H4		1661500900	3.543						
7/16 - 14 UNC	H5		1661501000	3.937	0.858	-	0.323	0.242	0.406	
7/16 - 20 UNF			1661501100							
1/2 - 13 UNC			1661501200	4.331	0.921		0.367	0.275	0.438	
1/2 - 20 UNF			1661501300	3.937						

Packed: 1 pc.

EDP's listed above are stocked standard, other coatings available upon request.

Specify treatment at time of order.

Note: Reduce SFM 50% - 70% while using external coolant.

ATP

Work Material													
List No.	P					M			K	N		S	H
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium
	Low	Med.	High	4140	4340	300	400	17-4 PH		6061	Casting	Inconel	6Al4V (30 HRC)
16615	1018	1035	1065	1045						7075			
SFM									15-50	30-330	30-330		

☐ good ☒ best



A Brand® A-CSF & A-CHT

Advanced Performance Carbide Coolant-Through Taps for Cast Iron and Aluminum Alloy

List 16610

A-CHT, Coolant-Through, DIN Overall Length, Bottom (1.5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P)						
			Bright						
M5 x 0.8	D4	3	1661000000	70.00	10.00	25.00	4.93	3.86	6.35
M6 x 1.0	D5		1661000100	80.00	12.00	31.00	6.48	4.85	7.92
M8 x 1.25			1661000200	90.00	15.00	35.00	8.08	6.05	9.52
M10 x 1.5	D6	4	1661000300	100.00	18.00	39.00	9.68	7.26	11.11
M10 x 1.25	D5		1661000400						
M12 x 1.75	D6		1661000500	110.00					
M12 x 1.5			1661000600	100.00	21.00	-	9.32	6.98	
M12 x 1.25			1661000700						

Packed: 1 pc.

EDP's listed above are stocked standard, other coatings available upon request.

Specify treatment at time of order.

Note: Reduce SFM 50% - 70% while using external coolant.

ATP

Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	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 1018	1035 1045	1065														
16610									☐	☐	☐						
SFM									15-50	30-330	30-330						

☐ good ☐ best



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

Superior Threads

No Galling of the Work Material



Mild Steel



Stainless Steel

Sharp Cutting Edge

stabilizes chip shape

Variable Lead Flute

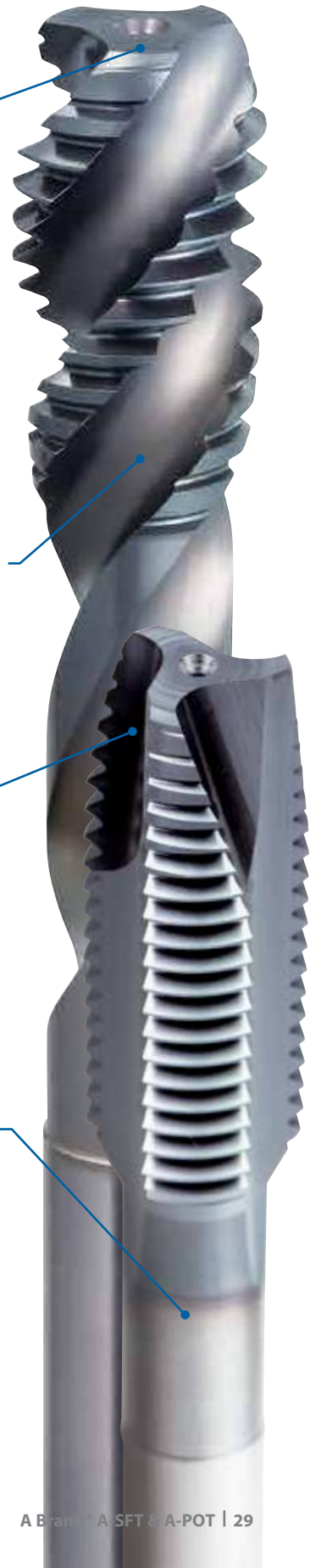
accelerates chip evacuation

V Coating

for high wear resistance

Powder Metallurgy HSS

for high wear resistance and toughness

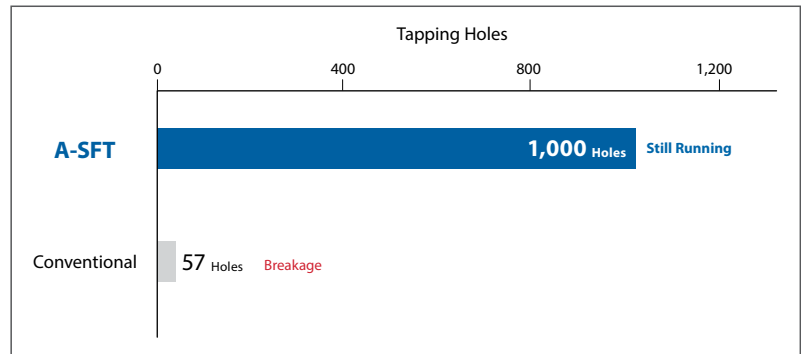


Deep Hole Tapping in Stainless Steel

304 Stainless Steel

The A-SFT is capable of achieving superior results in stainless steel with water-soluble coolant. Capable of continuing after 1,000 holes while the competitor tool broke after tapping just 57 holes.

Tool	A-SFT	Conventional
Drill Size	ØM8 x 1.25 (2.5P Chamfer)	
Work Material	304 Stainless Steel	
Pre-Drilled Hole	Ø6.8mm x 22mm (Blind)	
Tapping Depth	16mm (2D)	
Cutting Speed	33 SFM (398 RPM)	
Coolant	Water-soluble Chlorine-Free (10%)	
Machine	Vertical Machining Center (Synchronized)	



Cutting Edge after Tapping 1,000 Holes

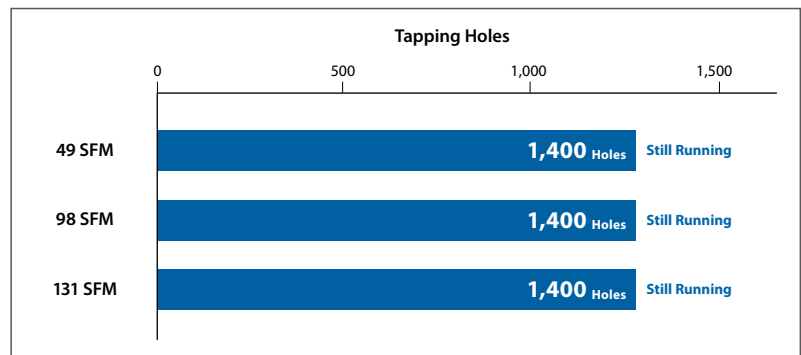


Cutting Speed and Performance Stability

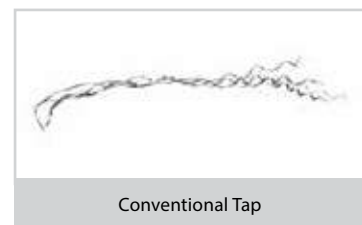
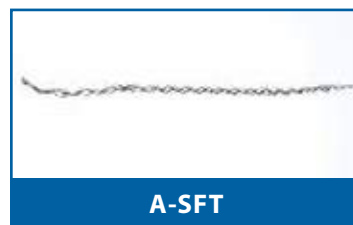
1045 Carbon Steel

The A-SFT maintained stable cutting when tapping at 49, 98 and 131 SFM in carbon steel.

Tool	A-SFT	Conventional
Drill Size	ØM8 x 1.25 (2.5P Chamfer)	
Work Material	304 Stainless Steel	
Pre-Drilled Hole	Ø6.8mm x 22mm (Blind)	
Tapping Depth	16mm (2D)	
Cutting Speed	33 SFM (398 RPM)	
Coolant	Water-soluble Chlorine-Free (10%)	
Machine	Vertical Machining Center (Synchronized)	



Chips Generated at 131 SFM



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.)

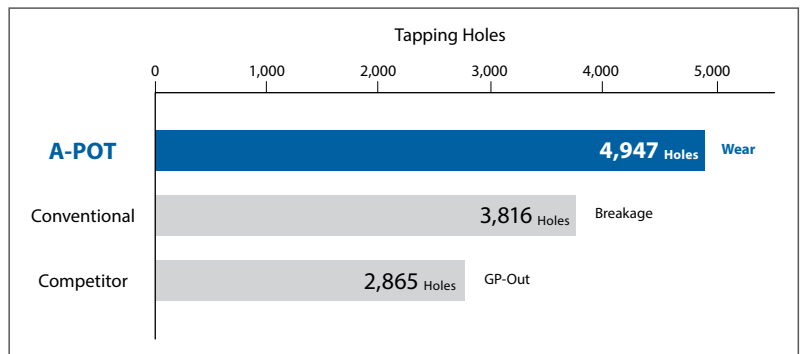


Maximize the Performance of Your Machine

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)		

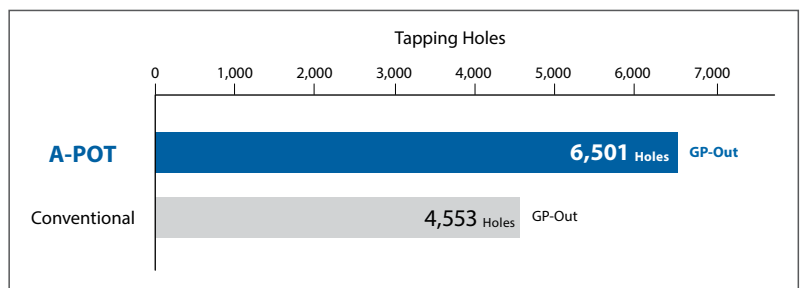


High Speed Machining

Carbon Steel (1045)

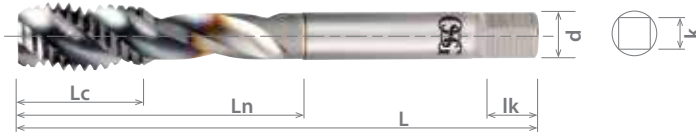
The A-POT achieved 1.5 times the durability compared to conventional taps.

Tool	A-POT	Conventional
Drill Size	ØM8 x 1.25	
Work Material	1045 Steel	
Pre-Drilled Hole	Ø6.8mm x 16mm (Through)	
Tapping Depth	16mm (2D)	
Cutting Speed	164 SFM (1,990 RPM)	
Coolant	Water-soluble Chlorine-Free (10%)	
Machine	Vertical Machining Center (Synchronized)	



List 16505

A-SFT, DIN Overall Length, Modified Bottom (2P-3P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number		DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length																			
			Bottom (1.5P)	Mod Bottom (2.5P)																									
			V	V																									
4 - 40 UNC	H2	2	1650508908	1650500108	2.205	0.196	0.704	0.141	0.110	0.188																			
4 - 48 UNF			1650509008	1650500208																									
5 - 40 UNC			1650509108	1650500308																									
5 - 44 UNF			1650509208	1650500408																									
6-32 UNC	H3	3	1650509308	1650513108		0.248	0.783				0.168	0.131	0.250																
	H2		1650509408	-																									
	H3	-	1650500608																										
6 - 40 UNF	H2	2	1650513208	1650500508										0.251	0.826	0.168	0.131	0.250											
		3	1650509508	-																									
8 - 32 UNC	H2	2	-	1650500708										2.480	0.251	0.826	0.168	0.131	0.250										
			3	1650509608	-																								
	H3	3	1650509708	-																									
			2	-	1650500908																								
8 - 36 UNF	H2	2	-	1650500808	2.756	0.326	0.976	0.194	0.152	0.313																			
			3	1650509808							-																		
10 - 24 UNC	H3	3	1650509908	-							0.330	1.177	0.220							0.165	0.281								
			2	-																		1650501108							
			10 - 32 UNF	H2																		2	1650510008	-	0.397	1.177	0.255	0.191	0.313
																							H3	1650510108					
H2	-	1650501308																											
12 - 24 UNC	H3	3	-	1650501208										3.150	0.330	1.177	0.220	0.165	0.281										
			2	1650510208							-																		
			3	-							1650501408																		
			2	1650510308	-																								
12 - 28 UNF	H3	2	-	1650501508	3.543	0.444	1.377	0.318	0.238	0.375																			
			3	1650510408							-																		
			2	-							1650505608																		
			3	1650510608							-																		
1/4 - 20 UNC	H5	2	1650510708	-							3.937	0.500	1.535							0.310	0.286	0.438							
			3	-																			1650501708						
			H3	1650510908										-															
			H4	1650510808										-															
1/4 - 28 UNF	H3	3	-	1650501908										3.150	0.444	1.377	0.318	0.238	0.375										
			H3	-																			1650501808						
			H4	1650510508	1650505708																								
			H3	1650511008	-																								
5/16 - 18 UNC	H5	2	1650511108	1650502108	3.937	0.500	1.377	0.310	0.286	0.438																			
			3	1650511208																			1650502008						
			H3	1650511308							1650502308																		
			H4	1650511408							1650502208																		
5/16 - 32 UNEF	H3	2	1650511508	1650505808							3.543	0.500	1.377							0.310	0.286	0.438							
			3	1650511608																			1650502508						
			H3	1650511708										1650502408															
			H4	1650511808										1650502708															
3/8 - 16 UNC	H5	2	1650511908	1650502608										3.937	0.570	1.712	0.323	0.242	0.406										
			3	1650512008																			-						
			H3	-	1650505908																								
			H4	1650512108	1650502908																								
7/16 - 14 UNC	H5	2	1650512208	1650502808	3.543	0.570	1.712	0.323	0.242	0.406																			
			3	1650512308																			1650503108						
			H3	1650512408							1650503008																		
			H4	1650512508							1650506008																		

Packed: 1 pc.
Available V coating only.



List 16505 (Continued)

A-SFT, DIN Overall Length, Modified Bottom (2P-3P), Bottom (1.5P-2P)

VC10

V

Var.°

Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number		DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length					
			Bottom (1.5P)	Mod Bottom (2.5P)											
			V	V							L	Lc	Ln	d	k
1/2 - 13 UNC	H3	3	1650512608	1650503308	4.331	0.614	1.933	0.367	0.275	0.438					
	H5		1650512708	1650503208											
1/2 - 20 UNF	H3		1650512808	1650503508	3.937										
	H5		1650512908	1650503408											
1/2 - 28 UNEF	H4		1650513008	1650506108											
9/16 - 12 UNC	H3		-	1650503708	4.331										
	H5		-	1650503608											
9/16 - 18 UNF	H3		-	1650503908	3.937										
	H5		-	1650503808											
9/16 - 24 UNEF	H4		-	1650506208											
5/8-11 UNC	H3		4	-	1650504108	4.331	0.728	2.125	0.480	0.360	0.563				
	H5			-	1650504008										
5/8 - 18 UNF	H3			-	1650504308	3.937									
	H5			-	1650504208										
5/8 - 24 UNEF	H4			-	1650506308										
11/16 - 24 UNEF		-		1650506408	4.331	0.909						2.165	0.542	0.406	0.625
3/4 - 10 UNC	H3	-		1650504508	4.921	1.000						2.433	0.590	0.442	0.688
	H5	-		1650504408											
3/4 - 16 UNF	H3	-		1650504708	4.331										
	H5	-		1650504608											
3/4 - 20 UNEF		-		1650506508	4.921		0.652	0.489							
13/16 - 20 UNEF		-		1650506608	4.921										
7/8 - 9 UNC	H4	-		1650504908	5.512		1.110	2.653	0.697	0.523	0.750				
	H6	-		1650504808											
7/8 - 14 UNF	H4	-		1650505108	4.921										
	H6	-	1650505008												
7/8 - 20 UNEF	H5	-	1650506708	5.512	2.692	0.760			0.570						
15/16 - 20 UNEF		-	1650506808	5.512											
1 - 8 UNC	H4	-	1650505308	6.299	1.251	3.011			0.800	0.600		0.813			
	H6	-	1650505208												
	H8	-	1650507008												
1 - 12 UNF	H6	-	1650505408	5.512											
	H4	-	1650505508	6.299											
1 - 14 UNS	H6	-	1650513308	5.512											
1 - 20 UNEF	H5	-	1650506908												
1,1/8 - 7 UNC	H9	-	1650507108	7.087	0.944	3.818	0.896	0.672	0.875						
1,1/8 - 8 UN		-	1650507208		0.826										
1,1/8 - 12 UNF	H8	-	1650507308	5.906	0.826	3.070									
1,1/4 - 7 UNC	H10	-	1650507408	7.087	0.944	3.937	1.021	0.766	1.000						
1,1/4 - 8 UN	H9	-	1650507508		0.826										
1,1/4 - 12 UNF	H8	-	1650507608	5.906	0.826	3.070	1.021	0.766	1.000						
1,3/8 - 6 UNC	H10	-	1650507708	7.874	1.102	4.527	1.108	0.831	1.063						
1,3/8 - 8 UN	H9	-	1650507808		0.826										
1,3/8 - 12 UNF	H8	-	1650507908	6.693	1.102	3.582									
1,1/2 - 6 UNC	H10	-	1650508008	7.874	0.826	4.527	1.233	0.925	1.125						
1,1/2 - 8 UN	H9	-	1650508108												
1,1/2 - 12 UNF	H8	-	1650508208	6.693	0.826	3.582									
1,5/8 - 8 UN	H10	-	1650508308	7.874	1.299	4.330	1.305	0.979							
1,3/4 - 5 UNC	H11	-	1650508408	8.661		4.724	1.430	1.072							
1,3/4 - 8 UN	H10	-	1650508508	7.874	0.826	3.976	1.519	1.139	1.250						
1,7/8 - 8 UN		-	1650508608	8.858		4.921									
2 - 4,1/2 UNC	H12	-	1650508708	9.843	1.456	5.511	1.644	1.233	1.375						
2 - 8 UN	H10	-	1650508808	8.858	0.826	4.803									

Packed: 1 pc.

Available V coating only.

ATP

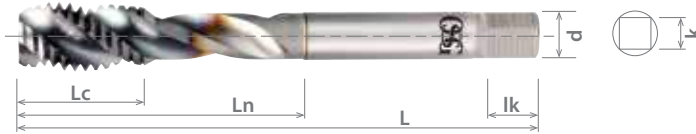
Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065			4140 4340	300	400		17-4 PH	6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC
16505	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐			☐			
SFM	80-120	80-120	80-120	35-50	20-40	15-35	15-35	15-25	50-80	70-120	70-120			30-55			

☐ good ☐ best



List 16500

A-SFT, DIN Overall Length, Modified Bottom (2P-3P), Bottom (1.5P-2P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number		DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	
			Bottom (1.5P)	Mod Bottom (2.5P)							
			V	V							L
M1.4 x 0.3	D2	2	-	1650003008	40.00	6.00	11.50	3.581	2.79	4.80	
M1.6 x 0.35	D3		-	1650003108		7.00	13.60				
M1.7 x 0.35			-	1650003208		8.00	13.40				
M2 x 0.4	D2		-	1650003408	45.00	3.30	10.00				
M2 x 0.25			-	1650003308			11.00				
M2.2 x 0.45			D3	-							1650003608
M2.2 x 0.25			D2	-			1650003508				3.20
M2.3 x 0.4			D3	-		1650003708					
M2.5 x 0.45				-	1650003908						
M2.5 x 0.35				-	1650003808						
M2.6 x 0.45				-	1650004008						
M3 x 0.5	3	1650009808		1650000108	56.00	4.00	18.00				
M3 x 0.35		D2	1650009708	-							
M3.5 x 0.6		D3	-	1650004108		4.80	20.00				
			1650010008	1650004308							
M3.5 x 0.35		1650009908	1650004208								
M4 x 0.7		D4	1650010208	1650000308	63.00	5.60	20.90	4.267	3.33		
M4 x 0.5		D3	1650010108	1650000208							
M4.5 x 0.75		D4	1650010408	1650004508	70.00	6.10	24.90	4.928	3.86		
M4.5 x 0.5		D3	1650010308	1650004408							
M5 x 0.8		D4	1650010608	1650000508		6.40	25.10				
M5 x 0.5		D3	1650010508	1650000408							
M5.5 x 0.5	1650010708		1650004608	80.00	7.30	30.10	5.588	4.19	7.10		
M6 x 1.0	D5	1650011008	1650000808								
M6 x 0.75	D4	1650010908	1650000708				29.90	6.477	4.85	7.90	
M6 x 0.5	D3	1650010808	1650000608								
M7 x 1.0	D5	1650011208	1650004808		30.00	8.077	6.05	9.50			
M7 x 0.75	D4	1650011108	1650004708								
M8 x 1.25	D5	1650011508	1650001008	90.00	10.00	35.00	9.677	7.26	11.10		
M8 x 1.0		1650011408	1650000908								
M8 x 0.75	D4	1650011308	1650004908	80.00	8.00	33.00	9.677	7.26	11.10		
M9 x 1.25	D5	1650011808	1650005208								
M9 x 1.0		1650011708	1650005108	90.00	10.00	35.00					
M9 x 0.75	D4	1650011608	1650005008				8.00				
M10 x 1.5	D6	1650012208	1650001308	100.00	12.00	39.00					
M10 x 1.25	D5	1650012108	1650001208								
M10 x 1.0		1650012008	1650001108	90.00	10.00	35.00					
M10 X 0.75	D4	1650011908	1650005308								
M11 x 1.5	D6	3	1650012608	1650005608	100.00	12.00	43.50	8.204	6.15	10.30	
M11 x 1.25	D5		1650012508	-							
M11 X 1.0	D4		1650012408	1650005508	90.00	8.00					
M11 x 0.75		1650012308	1650005408								
M12 x 1.75	D6	1650013008	1650001708	110.00	14.00	49.10	9.322	6.98	11.10		
M12 x 1.5		1650012908	1650001608								
M12 x 1.25		1650012808	1650001508	100.00	12.00						
M12 x 1.0	D5	1650012708	1650001408								
M14 x 2.0	D7	-	1650001908	110.00	16.00	50.10	10.897	8.18	12.70		
M14 x 1.5	D6	-	1650001808								
M14 x 1.25		-	1650005808	100.00	12.00						
M14 x 1.0	D5	-	1650005708								
M15 x 1.25	D6	-	1650013208	16.00							
M15 X 1.5		-	1650006008								
M15 x 2	D7	-	1650013108	110.00	54.00	12.192	9.14	14.30			
M15 x 1.0	D5	-	1650005908	100.00							
M16 x 2.0	D7	-	1650002108	110.00							
M16 x 1.25	D6	-	1650013308	100.00					12.00		
M16 x 1.5		-	1650002008								
M16 x 1.0		D5	-							1650006108	12.00

Packed: 1 pc.
Available V coating only.



List 16500 (Continued)

A-SFT, DIN Overall Length, Modified Bottom (2P-3P), Bottom (1.5P-2P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number		DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length				
			Bottom (1.5P)	Mod Bottom (2.5P)										
			V	V							L	Lc	Ln	d
M17 x 1.5	D6		-	1650006208	100.00	16.00			10.31	15.90				
M17 x 1.25		-	1650013408	12.00		9.31			14.90					
M17 x 1.0	D5		-	1650006308										
M18 x 2.5	D7		-	1650002308	125.00	25.00	55.00	13.767	10.31	15.90				
M18 x 2.0				-	1650006508									
M18 x 1.5			D6		-	1650002208								
M18 x 1.25			-	1650013508	110.00	16.00								
M18 x 1.0	D5		-	1650006408	100.00									
M20 x 2.5	D7		-	1650002508	140.00	25.00	61.80	16.561	12.42	17.50				
M20 x 2.0				-	1650006708									
M20 x 1.5			D6		-	1650002408					125.00	16.00		
M20 x 1.0	D5		-	1650006608										
M22 x 2.5	D7		-	1650002708	140.00	25.00	67.40	17.704	13.28	19.10				
M22 x 2.0				-	1650006908									
M22 x 1.5			D6		-	1650002608					125.00	16.00		
M22 x 1.0	D5		-	1650006808										
M24 x 3.0	D8		-	1650002908	160.00	30.00	68.40	19.304	14.48					
M24 x 2.0	D7		-	1650007108	140.00						16.00			
M24 x 1.5	D6		-	1650002808										
M24 x 1.0	D5		-	1650007008										
M27 x 3.0	D10		-	1650007408	160.00	36.00	80.00	22.758	17.07	22.20				
M27 x 2.0	D8		-	1650007308	140.00	24.00	60.00							
M27 x 1.5	D8		-	1650007208										
M30 x 3.5	D11		-	1650007708	180.00	42.00	100.00	25.933	19.46	25.40				
M30 x 2.0	D9		-	1650007608	150.00	36.00	70.00							
M30 x 1.5	D8		-	1650007508										
M33 x 3.5	D11		-	1650008008	180.00	42.00	95.00	28.143	21.11	27.00				
M33 x 2.0	D9		-	1650007908	160.00	36.00	75.00							
M33 x 1.5	D8		-	1650007808										
M36 x 4.0	D11		-	1650008408	200.00	48.00	115.00	31.318	23.50	28.60				
M36 X 3.0	D10		-	1650008308		36.00					85.00			
M36 x 2.0	D9		-	1650008208		170.00								
M36 x 1.5	D8		-	1650008108										
M39 x 4.0	D11		-	1650008508	200.00		110.00	33.147	24.87					
M42 x 3.0	D10		-	1650008808		48.00	100.00							
M42 x 2.0	D9		-	1650008708		170.00	70.00							
M42 x 4.5	D12		-	1650008908	200.00	54.00	100.00	36.322	27.23	31.80				
M42 x 1.5	D8		-	1650008608	170.00	48.00	70.00							
M45 x 4.5	D12		-	1650009108	220.00	54.00	120.00				38.583	28.93		
M45 x 3.0	D10		-	1650009008	200.00	48.00	100.00							
M48 x 5.0	D13		-	1650009508	250.00	60.00	140.00							
M48 x 3.0	D11		-	1650009408	225.00		115.00	41.758	31.32	34.90				
M48 x 2.0	D9		-	1650009308	190.00	48.00	80.00							
M48 x 1.5	D8		-	1650009208										
M56 x 5.5	D14		-	1650009608	250.00	66.00	130.00	48.108	36.07	36.50				

Packed: 1 pc.
Available V coating only.



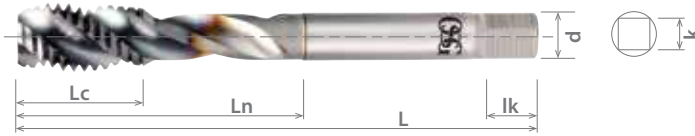
Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
	1010 1018	1035 1045	1065			4140 4340											
16500	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐			☐			
SFM	80-120	80-120	80-120	35-50	20-40	15-35	15-35	15-25	50-80	70-120	70-120			30-55			

☐ good ☐ best



List 16545

A-OIL-SFT, Coolant-Through, DIN Overall Length, Modified Bottom (2.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	
			Mod Bottom (2.5P)							
			V							L
1/4 - 20 UNC	H5	3	1654500108	3.150	0.402	1.181	0.255	0.191	0.313	
1/4 - 28 UNF	H4		1654500208		0.402	1.181				
5/16 - 18 UNC	H5		1654500308		0.445	1.378				
5/16 - 24 UNF	H4		1654500408	3.543	0.445	1.378	0.318	0.238	0.375	
3/8 - 16 UNC	H5		1654500508		0.500	1.535				
3/8 - 24 UNF	H4		1654500608		0.500	1.378				
7/16 - 14 UNC	H5		1654500708	3.937	0.571	1.713	0.323	0.242	0.406	
7/16 - 20 UNF			1654500808		0.571	1.713				
1/2 - 13 UNC			1654500908		0.614	1.933				
1/2 - 20 UNF			1654501008	4.331	0.614	1.933	0.367	0.275	0.438	
9/16 - 12 UNC			1654501108		0.665	1.972				
9/16 - 18 UNF			1654501208		0.665	1.972				
5/8 - 11 UNC			1654501308	4.331	0.728	2.126	0.480	0.360	0.563	
5/8 - 18 UNF			1654501408		0.728	2.126				
3/4 - 10 UNC			H6		1654501508	4.921	1.000	2.433	0.590	0.442
3/4 - 16 UNF		1654501608		4.331	1.000		2.433			
7/8 - 9 UNC		1654501708		5.512	1.110		2.654			
7/8 - 14 UNF		1654501808		4.921	1.110	2.654	0.697	0.523	0.750	
1 - 8 UNC		1654501908			6.299	1.252				3.012
		1654502008				1.252				3.012
		1 - 12 UNF		H6	1654502108	5.512	1.252	3.012	0.800	0.600
1,1/8 - 7 UNC	H9	1654502208		7.087	1.732		3.819			
1,1/8 - 8 UN		1654502308			1.496		3.819			
1,1/8 - 12 UNF		H8			1654502408	5.906	1.496	3.071		
1,1/4 - 7 UNC	H10	1654502508		7.087	1.732	3.937	1.021	0.766	1.000	
1,1/4 - 8 UN	H9	1654502608			1.496	3.937				
1,1/4 - 12 UNF	H8	1654502708			5.906	1.496				3.071
1,3/8 - 6 UNC	H10	1654502808		7.874	2.008	4.528	1.108	0.831	1.063	
1,3/8 - 8 UN	H9	1654502908			1.496	4.528				
1,3/8 - 12 UNF	H8	1654503008	6.693		1.496	3.583				
1,1/2 - 6 UNC	H10	1654503108	7.874	2.008	4.528	1.233	0.925	1.125		
1,1/2 - 8 UN	H9	1654503208		1.496	4.528					
1,1/2 - 12 UNF	H8	1654503308		6.693	1.496				3.583	
1,5/8 - 8 UN	H10	1654503408	7.874	1.496	4.331	1.305	0.979	1.250		
1,3/4 - 5 UNC	H11	1654503508	8.661	2.402	4.724	1.430	1.072			
1,3/4 - 8 UN	H10	1654503608	7.874	2.008	3.976					
1,7/8 - 8 UN		1654503708	8.858	2.008	4.921	1.519	1.139			
2 - 4,1/2 UNC	H12	1654503808	9.843	2.677	5.512	1.644	1.233	1.375		
2 - 8 UN	H10	1654503908	8.858	2.008	4.803					

Packed: 1 pc.
Available V coating only.



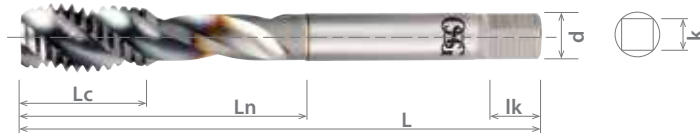
Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting			~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
	1010	1035	1065	4140													
	1018	1045		4340													
16545																	
SFM	100-200	100-200	100-200	50-100	40-80	25-70	25-70	25-50	60-150	90-220	90-220			50-100			

☐ good ☐ best



List 16540

A-OIL-SFT, Coolant-Through, DIN Overall Length, Modified Bottom (2.5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Mod Bottom (2.5P)						
			V						
M6 x 1.0	D5	3	1654000208	80.00	8.00	30.00	6.48	4.85	7.90
M6 x 0.75	D4		1654000108						
M7 x 1.0	D5		1654000308						
M8 x 1.25			1654000608	90.00	10.00	35.00	8.08	6.05	9.50
M8 x 1.0			1654000508						
M8 X 0.75	D4		1654000408						
M9 x 1.25	D5		1654000708	90.00	10.00	35.00	9.68	7.26	11.10
M10 x 1.5	D6		1654001008	100.00	12.00	39.00			
M10 x 1.25	D5		1654000908						
M10 x 1.0			1654000808	90.00	10.00	35.00			
M11 x 1.5			D6	1654001108	100.00	12.00	43.50	8.20	6.15
M12 x 1.75	1654001508			110.00	14.00	49.10	9.32	6.98	11.10
M12 x 1.5	1654001408			100.00					
M12 x 1.25	1654001308				12.00				
M12 x 1.0	1654001208								
M14 x 2.0	D7		1654001708	110.00	16.00	50.10	10.90	8.18	12.70
M14 x 1.5	D6		1654001608	100.00					
M15 x 1.5			1654001808	110.00		54.00	12.19	9.14	14.30
M16 x 2.0	D7		1654002008						
M16 x 1.5	D6		1654001908	100.00		25.00	55.00	13.77	10.31
M17 x 1.5			1654002108						
M18 x 2.5	D7		1654002308	125.00	61.80		16.56	12.42	17.50
M18 x 1.5	D6		1654002208	110.00					
M20 x 2.5	D7		1654002508	140.00					
M20 x 1.5	D6		4	1654002408	125.00	16.00	67.40	17.70	13.28
M22 x 2.5	D7	1654002808		140.00	25.00				
M22 x 2.0		1654002708							
M22 x 1.5	D6	1654002608		125.00	16.00	68.40	19.30	14.48	
M24 x 3.0	D8	1654003108		160.00	30.00				
M24 x 2.0	D7	1654003008		140.00					16.00
M24 x 1.5	D6	1654002908							
M27 x 3.0	D10	1654003208		160.00	36.00	80.00	22.76	17.07	22.20
M30 x 3.5	D11	1654003308		180.00	42.00	100.00	25.93	19.46	25.40
M33 x 3.5		1654003408				95.00	28.14	21.11	27.00
M36 x 4.0		1654003508				115.00	31.32	23.50	28.60
M39 x 4.0		1654003608	110.00	33.15	24.87				
M42 x 4.5		D12	1654003708	200.00	48.00	100.00	36.32	27.23	31.80
M45 x 4.5	1654003808		120.00			38.58	28.93		
M48 x 5.0	D13	1654003908	250.00	60.00	140.00	41.76	31.32	34.90	
M56 x 5.5	D14	1654004008			66.00	130.00	48.11	36.07	36.50

Packed: 1 pc.
Available V coating only.



Work Material													
List No.	P					M			K	N		S	H
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium
	Low 1010 1018	Med. 1035 1045	High 1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)
16540	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		☐
SFM	100-200	100-200	100-200	50-100	40-80	25-70	25-70	25-50	60-150	90-220	90-220		50-100

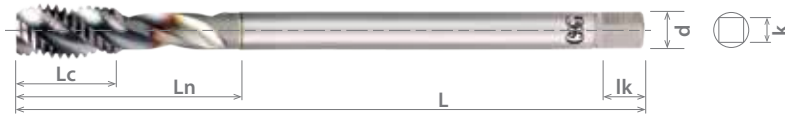
☐ good ☐ best



List 16525

A-LT-SFT, Long Shank, Modified Bottom (2.5P)

VC10	V	Var.°
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Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number	Long Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Mod Bottom (2.5P)						
			V						
4 - 40 UNC	H2	2	1652505608	3.150	0.197	0.705	0.141	0.110	0.188
4 - 48 UNF			1652505708						
5 - 40 UNC			1652500308	3.937	0.201	0.709			
5 - 44 UNF			1652505908						
6 - 32 UNC	H3		1652500608	4.724	0.248	0.783			
6 - 40 UNF	H2		1652500708	3.937					
8 - 32 UNC	H3		1652500908	4.724	0.252	0.827	0.168	0.131	0.250
8 - 36 UNF	H2		1652501008	3.937					
10 - 24 UNC	H3		1652501108	4.921	0.327	0.976	0.194	0.152	
10 - 32 UNF			1652501308	5.906					
12 - 24 UNC			1652501408	4.921	0.331	1.177	0.220	0.165	0.281
12 - 28 UNF			1652501508						
1/4 - 20 UNC	H5	1652501708	5.906	0.398	1.378	0.318	0.238	0.375	
1/4 - 28 UNF	H4	1652501908							
5/16 - 18 UNC	H5	1652502108		0.445	1.535	0.381	0.286	0.438	
5/16 - 24 UNF	H4	1652502308							
3/8 - 16 UNC	H5	1652502508		0.500	1.378				
3/8 - 24 UNF	H4	1652502708							
7/16 - 14 UNC	H5	1652502908		0.571	2.362	0.323	0.242	0.406	
7/16 - 20 UNF		1652503108							
1/2 - 13 UNC		1652503308		0.614	2.835	0.367	0.275	0.438	
1/2 - 20 UNF		1652503508							
9/16 - 12 UNC		1652503708	0.665	0.429	0.322	0.500			
9/16 - 18 UNF		1652503908							
5/8 - 11 UNC		1652504108	0.728	0.480	0.360	0.563			
5/8 - 18 UNF		1652504308							
3/4 - 10 UNC		H6	1652504508	1.000	3.150	0.590	0.442	0.688	
3/4 - 16 UNF			1652504708						
7/8 - 9 UNC	1652504908		1.110	0.697	0.523	0.750			
7/8 - 14 UNF	1652505108								
1 - 8 UNC	1652505308		1.252	3.465	0.800	0.600	0.813		
1 - 12 UNF	1652505508								

Packed: 1 pc.
Available V coating only.



Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	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 1018	1035 1045	1065			4140 4340											
16525																	
SFM	80-120	80-120	80-120	35-50	20-40	15-35	15-35	15-25	50-80	70-120	70-120			30-55			

☐ good ☐ best



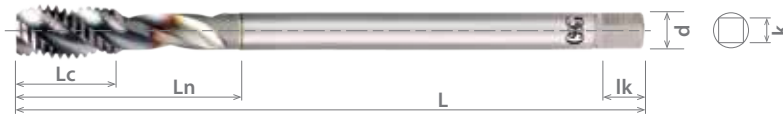
List 16520

A-LT-SFT, Long Shank, Modified Bottom (2.5P)

VC10

V

Var.°



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number	Long Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length			
			Mod Bottom (2.5P)									
			V							L	Lc	Ln
M3 x 0.5	D3	3	1652001308	100.00	4.10	18.10	3.58	2.79	4.80			
M3 x 0.35			1652001208									
M3.5 x 0.6			1652001508		4.80	20.00						
M3.5 x 0.35			1652001408									
M4 x 0.7	D4		1652001708	125.00	5.60	21.00	4.27	3.33	6.40			
M4 x 0.5	D3		1652001608									
M4.5 x 0.75	D4		1652001908		6.10	25.10						
M4.5 x 0.5	D3		1652001808									
M5 x 0.8	D4		1652002108	6.40	25.00	4.93	3.86					
M5 x 0.5	D3		1652002008									
M5.5 x 0.5			1652002208	7.30	30.10			5.59	4.19	7.10		
M6 x 1.0	D5		1652002708									
M6 x 0.75	D4		1652002508	150.00	8.00	30.00	6.48	4.85	7.90			
M6 x 0.5	D3		1652002308	125.00								
M8 x 1.25	D5		1652003708	150.00	10.00	35.00				8.08	6.05	9.50
M8 x 1.0			1652003508									
M8 x 0.75			D4		1652003308	8.00	33.00					
M10 x 1.5	D6		1652005108		12.00			39.00	9.68			
M10 x 1.25	D5		1652004908									
M10 x 1.0			1652004708	10.00	35.00							
M10 x 0.75	D4		1652004508			14.00	72.00	9.32		6.98		
M12 x 1.75	D6		1652006708	180.00	12.00							
M12 x 1.5			1652006508									
M12 x 1.25			1652006308									
M12 x 1.0	D5		1652006108		150.00	16.00	60.00	10.90	8.18	12.70		
M14 x 2	D7		1652007108	12.00								
M14 x 1.5	D6		1652007008			12.00						
M14 x 1.25			1652006908	16.00			64.00				12.19	9.14
M14 x 1.0	D5		1652006808		12.00							
M15 x 1.5	D6		1652007308	160.00		16.00	64.00					
M15 x 1.0	D5		1652007208		180.00			16.00	72.00			
M16 x 2.0	D7		1652007708	160.00		12.00						
M16 x 1.5	D6		1652007508		180.00		25.00	72.00	13.77	10.31	15.90	
M16 x 1.0	D5		1652007408									
M18 x 2.5	D7		1652008308	180.00	16.00							
M18 x 2.0			1652008208			25.00						
M18 x 1.5			D6		1652008108							
M18 x 1.0	D5		1652008008		200.00	25.00	16.56	12.42	17.50			
M20 x 2.5	D7		1652008708	16.00								
M20 x 2.0			1652008608			25.00				80.00	17.70	13.28
M20 x 1.5	D6		1652008508	16.00								
M20 x 1.0	D5		1652008408		25.00	19.30	14.48	19.10				
M22 x 2.5	D7		1652009108	16.00								
M22 x 2.0			1652009008		30.00							
M22 x 1.5	D6		1652008908	16.00								
M22 x 1.0	D5		1652008808		83.00	19.30	14.48					
M24 x 3.0	D8		1652009508									
M24 x 2.0	D7		1652009408									
M24 x 1.5	D6		1652009308									
M24 x 1.0	D5		1652009208									

Packed: 1 pc.

Available V coating only.

ATP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels 4140 4340	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High							6061	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
	1010 1018	1035 1045	1065			300	400	17-4 PH		7075							
16520	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐			☐			
SFM	80-120	80-120	80-120	35-50	20-40	15-35	15-35	15-25	50-80	70-120	70-120			30-55			

☐ good ☐ best

List 16515

A-POT, DIN Overall Length, Plug (3.5P-4.5P)

VC10

V



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	
			Plug (3.5P - 4.5P)							
			V							L
2 - 56 UNC	H2	2	1651505608	1.772	0.437	0.476	0.141	0.110	0.188	
2 - 64 UNF			1651505708							
3 - 48 UNC			1651505808	1.969	0.500	0.539				
3 - 56 UNF			1651505908							
4 - 40 UNC			1651500108	2.205	0.295	0.704				
4 - 48 UNF			1651500208							
5 - 40 UNC			1651500308		0.299	0.708				
5 - 44 UNF			1651500408							
6 - 32 UNC			H3		1651500608	0.370				0.783
6 - 40 UNF					1651500708					
8 - 32 UNC	H3	1651500908	2.480	0.374	0.826	0.168	0.131	0.250		
8 - 36 UNF		1651500808								
10 - 24 UNC	H3	1651501008	2.756	0.492	0.976	0.194	0.152			
10 - 32 UNF	H2	1651501108								
12 - 24 UNC		H3						1651501308		
12 - 28 UNF	1651501208									
12 - 32 UNEF	1651501408									
1/4 - 20 UNC	1651501508									
1/4 - 28 UNF	H5	1651506008	3.150	0.496	1.177	0.220	0.165	0.281		
1/4 - 32 UNEF		1651501708								
5/16 - 18 UNC	H3	1651501608	3.150	0.594	1.173	0.255	0.191	0.313		
5/16 - 24 UNF		1651501908								
5/16 - 32 UNEF	H3	1651501808	3.543	0.590	1.169	0.318	0.238	0.375		
3/8 - 16 UNC		1651506108								
3/8 - 24 UNF	H5	1651502108	3.937	0.665	1.377	0.381	0.286	0.438		
3/8 - 32 UNEF		1651502008								
7/16 - 14 UNC	H3	1651502308	3.543	0.661	1.374	0.381	0.242	0.406		
7/16 - 20 UNF		1651502208								
7/16 - 28 UNEF	H5	1651506208	3.937	0.653	1.366	0.381	0.275	0.438		
1/2 - 13 UNC		1651502508								
1/2 - 20 UNF	H3	1651502408	3.937	0.751	1.535	0.381	0.322	0.500		
1/2 - 28 UNEF		1651502708								
9/16 - 12 UNC	H5	1651502608	3.937	0.744	1.370	0.429	0.360	0.563		
9/16 - 18 UNF		1651506308								
9/16 - 24 UNEF	H3	1651502908	4.331	0.858	1.291	0.323	0.242	0.406		
5/8 - 11 UNC		1651502808								
5/8 - 18 UNF	H5	1651503108	4.331	0.921	1.354	0.367	0.275	0.438		
5/8 - 24 UNEF		1651503008								
	H4	1651506408	4.331	1.000	1.472	0.480	0.360	0.563		
		1651503308								
	H5	1651503208	3.937	1.090	1.562	0.480	0.360	0.563		
		1651503508								
	H3	1651503408	3.937	1.090	1.562	0.480	0.360	0.563		
		1651503608								
	H4	1651503708	4.331	1.090	1.562	0.480	0.360	0.563		
		1651503908								
	H5	1651503808	3.937	1.090	1.562	0.480	0.360	0.563		
		1651504008								
	H3	1651504108	4.331	1.090	1.562	0.480	0.360	0.563		
		1651504208								
	H4	1651504308	3.937	1.090	1.562	0.480	0.360	0.563		
		1651504408								

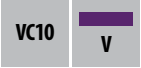
Packed: 1 pc.
Available V coating only.

ATP



List 16515 (Continued)

A-POT, DIN Overall Length, Plug (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length			
			Plug (3.5P - 4.5P)									
			V	L	Lc	Ln	d	k	lk			
11/16 - 24 UNEF	H4	3	1651506808	4.331	1.200	1.712	0.542	0.406	0.625			
3/4 - 10 UNC	H3		1651504508	4.921			0.590	0.442	0.688			
	H5		1651504408									
3/4 - 16 UNF	H3		1651504708	4.331								
	H5		1651504608									
3/4 - 20 UNEF			1651506908	4.921			0.652	0.489				
13/16 - 20 UNEF			1651507008									
7/8 - 9 UNC	H4		1651504908	1.334	1.885	0.697	0.523	0.750				
	H6		1651504808									
7/8 - 14 UNF	H4		1651505108						4.921			
	H6		1651505008									
7/8 - 20 UNEF	H5		1651507108						5.512	1.500	2.090	0.800
15/16 - 20 UNEF			1651507208									
1 - 8 UNC	H4		1651505308	6.299	0.760	0.570	0.750					
	H6		1651505208									
1 - 12 UNF	H4		1651505508	5.512								
	H6		1651505408									
1 - 14 UNS			1651507408									
1 - 20 UNEF		1651507308										

Packed: 1 pc.
Available V coating only.



Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	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 1018	1035 1045	1065			4140 4340											
16515	☒	☒	☒	☒	☐	☒	☒	☒	☐	☐	☐			☒			
SFM	80-120	80-120	80-120	40-65	35-55	25-75	25-60	25-60	60-100	70-120	70-120			40-65			

☐ good ☐ best



List 16510

A-POT, DIN Overall Length, Plug (3.5P-4.5P)

VC10

V



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Plug (3.5P - 4.5P)						
			V						
M1.4 x 0.3	D2	2	1651003008	40.00	7.90	8.90	3.58	2.79	4.80
M1.6 x 0.35	D3		1651003108		9.50	10.50			
M1.7 x 0.35			1651003208						
M2 x 0.4			1651003408						
M2 x 0.25	D2		1651003308	45.00	11.10	12.10			
M2.2 x 0.45	D3		1651003608						
M2.2 x 0.25	D2		1651003508						
M2.3 x 0.4	D3		1651003708	50.00	12.80	13.80			
M2.5 x 0.45			1651003908						
M2.5 x 0.35			1651003808						
M2.6 x 0.45			1651004008	56.00	6.10	18.10			
M3 x 0.5			1651000108						
M3 x 0.35			1651004108						
M3.5 x 0.6			1651004308	7.20	19.80				
M3.5 x 0.35			1651004208						
M4 x 0.7		D4	1651000308			63.00	8.40	21.00	4.27
M4 x 0.5	D3	1651000208							
M4.5 x 0.75	D4	1651004508	70.00	9.10	24.80				
M4.5 x 0.5	D3	1651004408							
M5 x 0.8	D4	1651000508							
M5 x 0.5	D3	1651000408	80.00	10.80	29.70	5.59	4.19	7.10	
M5.5 x 0.5		1651004608							
M6 x 1.0		D5							1651000808
M6 x 0.75	D4	1651000708	12.10	34.80	8.08	6.05	9.50		
M6 x 0.5	D3	1651000608							
M7 x 1.0	D5	1651004808						90.00	15.40
M7 x 0.75	D4	1651004708							
M8 x 1.25	D5	1651001008	80.00	14.00	34.70				
M8 x 1.0		1651000908							
M8 x 0.75		D4				1651004908	90.00	18.00	29.00
M9 x 1.25	D5	1651005208							
M9 x 1.0	D4	1651005108	100.00	17.00	38.90				
M9 x 0.75		1651005008							
M10 x 1.5		D6				1651001308	18.00	21.00	32.00
M10 x 1.25	D5	1651001208							
M10 x 1.0		1651001108							
M10 x 0.75		D4	1651005308	90.00	17.00	34.80			
M11 x 1.5	D6	1651005608							
M11 x 1.0	D5	1651005508	100.00				18.00	29.00	8.20
M11 x 0.75	D4	1651005408							
M12 x 1.75	D6	1651001708		110.00	21.00	32.00			
M12 x 1.5		1651001608							
M12 x 1.25		1651001508							
M12 x 1.0		1651001408							
M14 x 2.0	D7	1651001908	110.00	24.00	36.00	12.19	9.14	14.30	
M14 x 1.5	D6	1651001808							
M14 x 1.25		1651005808							
M14 x 1.0		D5	1651005708						
M15 x 2.0	D7	3	1651007208						100.00
M15 x 1.5	D6	4	1651006008						
M15 x 1.25			1651007308						
M15 x 1.0			D5						1651005908
M16 x 2.0	D7	3	1651002108						100.00
M16 x 1.5	D6	4	1651002008						
M16 x 1.25			1651007408						
M16 x 1.0			D5						

Packed: 1 pc.
Available V coating only.

ATP



List 16510 (Continued)

VC10

V

A-POT, DIN Overall Length, Plug (3.5P-4.5P)

Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length		
			Plug (3.5P - 4.5P)								
			V							L	Lc
M17 x 1.5	D6	4	1651006308	100.00	24.00	36.00	13.77	10.31	15.90		
M17 x 1.25			1651007508								
M17 x 1.0	D5		1651006208								
M18 x 2.5	D7	3	1651002308	125.00	30.00	43.00	16.56	12.42	17.50		
M18 x 2.0		4	1651006508							110.00	
M18 x 1.25	1651007608										
M18 x 1.5	1651002208										
M18 x 1.0	1651006408										
M20 x 2.5	D7	3	1651002508	140.00		44.00				17.70	13.28
M20 x 2.0		4	1651006708		125.00						
M20 x 1.5	1651002408										
M20 x 1.0	1651006608										
M22 x 2.5	D7		3	1651002708		140.00	51.00	19.30	14.48		
M22 x 2.0		4	1651006908	125.00							
M22 x 1.5	1651002608										
M22 x 1.0	1651006808										
M24 x 3.0	D8		3		1651002908	160.00				36.00	43.00
M24 x 2.0	D7	4	1651007108								
M24 x 1.5	D6		1651002808								
M24 x 1.0	D5		1651007008								

Packed: 1 pc.

Available V coating only.

ATP

Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	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 1018	1035 1045	1065			4140 4340	300	400		17-4 PH	6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC
16510	☒	☒	☒	☒	☐	☒	☒	☒	☐	☐	☐			☒			
SFM	80-120	80-120	80-120	40-65	35-55	25-75	25-60	25-60	60-100	70-120	70-120			40-65			

☐ good ☐ best



List 16555

A-OIL-POT, Coolant-Through, DIN Overall Length, Plug (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Plug (3.5P - 4.5P)						
			V						
1/4 - 20 UNC	H5	3	1655500108	3.15	0.598	1.181	0.255	0.191	0.313
1/4 - 28 UNF	H4		1655500208						
5/16 - 18 UNC	H5		1655500308	3.543	0.665	1.377	0.318	0.238	0.375
5/16 - 24 UNF	H4		1655500408						
3/8 - 16 UNC	H5		1655500508	3.937	0.751	1.535	0.381	0.286	0.438
3/8 - 24 UNF	H4		1655500608						
7/16 - 14 UNC	H5		1655500708	3.937	0.858	1.291	0.323	0.242	0.406
7/16 - 20 UNF			1655500808						
1/2 - 13 UNC			1655500908	4.331	0.921	1.354	0.367	0.275	0.438
1/2 - 20 UNF			1655501008						
9/16 - 12 UNC			1655501108	4.331	1.000	1.472	0.429	0.322	0.500
9/16 - 18 UNF			1655501208						
5/8 - 11 UNC			1655501308	4.331	1.090	1.562	0.480	0.360	0.563
5/8 - 18 UNF			1655501408						
3/4 - 10 UNC			1655501508	4.921	1.200	1.712	0.590	0.442	0.688
3/4 - 16 UNF			1655501608						
7/8 - 9 UNC	H6		1655501708	5.512	1.334	1.885	0.697	0.523	0.750
7/8 - 14 UNF			1655501808	4.921					
1 - 8 UNC			1655501908	6.299	1.500	2.090	0.800	0.600	0.813
1 - 12 UNF			1655502008	5.512					

Packed: 1 pc.

Available V coating only.

ATP

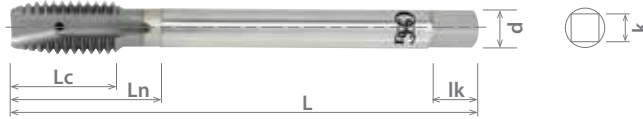
Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
	1010 1018	1035 1045	1065			4140 4340											
16555	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐			☐			
SFM	100-200	100-200	100-200	50-120	45-110	40-120	40-120	40-100	80-160	90-220	90-220			60-120			

☐ good ☐ best



List 16550

A-OIL-POT, Coolant-Through, DIN Overall Length, Plug (3.5P-4.5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	
			Plug (3.5P - 4.5P)							
			V							L
M6 x 1.0	D5	3	1655000208	80.00	12.00	30.00	6.48	4.85	7.90	
M6 x 0.75	D4		1655000108							
M7 x 1.0	D5		1655000308							90.00
M8 x 1.25			1655000608							
M8 x 1.0			1655000508							
M8 x 0.75			D4	1655000408	80.00	30.00				
M9 x 1.25	D5		1655000708	90.00	35.00	9.68	7.26	11.10		
M10 x 1.5	D6		1655001008	100.00	18.00				39.00	
M10 x 1.25	D5		1655000908							
M10 x 1.0			1655000808			90.00	35.00			
M11 x 1.5			1655001108	100.00	29.00	8.20	6.15	10.30		
M12 x 1.75			D6	1655001508	110.00	21.00	32.00	9.32	6.98	11.10
M12 x 1.5	1655001408									
M12 x 1.25	1655001308									
M12 x 1.0	D5		1655001208	100.00	24.00	36.00	10.90	8.18	12.70	
M14 x 2.0	D7		1655001708							110.00
M14 x 1.5	D6		1655001608							100.00
M15 x 1.5			1655001808							
M16 x 2.0	D7		3	1655002008	110.00	30.00	43.00	13.77	10.31	15.90
M16 x 1.5	D6		4	1655001908	100.00					
M17 x 1.5		1655002108								
M18 x 2.5	D7	3	1655002308	125.00	36.00	51.00	19.30	14.48	19.10	
M18 x 1.5	D6	4	1655002208	110.00						
M20 x 2.5	D7	3	1655002508	140.00						
M20 x 1.5	D6	4	1655002408	125.00						
M22 x 2.5	D7	3	1655002808	140.00	44.00	17.70	13.28	19.10		
M22 x 2.0		4	1655002708							
M22 x 1.5	D6		4	1655002608	125.00					
M24 x 3.0	D8	3	1655003108	160.00	36.00	51.00	19.30	14.48	19.10	
M24 x 2.0	D7	4	1655003008	140.00						
M24 x 1.5	D6		1655002908							

Packed: 1 pc.

Available V coating only.



Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	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 1018	1035 1045	1065			4140 4340											
16550																	
SFM	100-200	100-200	100-200	50-120	45-110	40-120	40-120	40-100	80-160	90-220	90-220			60-120			

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List 16535

A-LT-POT, Long Shank, Plug (3.5P-4.5P)

VC10

V



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number	Long Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Plug (3.5P - 4.5P)						
			V						
4 - 40 UNC	H2	2	1653506008	3.149	0.342	0.751	0.140	0.109	0.188
4 - 48 UNF			1653506108						
5 - 40 UNC		3	1653500708	3.937	0.350	0.759			
5 - 44 UNF			1653506308						
6 - 32 UNC	H3		1653501008	4.724	0.429	0.842	0.167	0.131	0.251
6 - 40 UNF	H2		1653501108	3.937	0.433	0.846			
8 - 32 UNC	H3		1653501308	4.724	0.444	0.897	0.194	0.151	
8 - 36 UNF	H2		1653501408	3.937					
10 - 24 UNC	H3		1653501508	4.921	0.574	1.059	0.220	0.164	0.279
10 - 32 UNF			1653501708	5.906	0.582	1.066			
12 - 24 UNC			1653501808	4.921	0.590	1.271			
12 - 28 UNF			1653501908						
1/4 - 20 UNC	H5	3	1653502108	5.906	0.704	1.366	0.255	0.190	0.287
1/4 - 28 UNF	H4		1653502308						
5/16 - 18 UNC	H5		1653502508		0.803	1.633	0.317	0.238	0.342
5/16 - 24 UNF	H4		1653502708						
3/8 - 16 UNC	H5		1653502908	0.917	1.897	0.380	0.285	0.397	
3/8 - 24 UNF	H4		1653503108						
7/16 - 14 UNC	H5			1653503308	0.858	2.362	0.322	0.242	0.405
7/16 - 20 UNF				1653503508					
1/2 - 13 UNC				1653503708	0.921	2.834	0.367	0.274	0.437
1/2 - 20 UNF				1653503908					
9/16 - 12 UNC				1653504108	1.000		0.429	0.322	0.500
9/16 - 18 UNF				1653504308					
5/8 - 11 UNC				1653504508	1.090	0.480	0.359	0.562	
5/8 - 18 UNF				1653504708					
3/4 - 10 UNC	H6			1653504908	1.200	0.590	0.442	0.688	
3/4 - 16 UNF				1653505108					
7/8 - 9 UNC			1653505308	1.334	3.149		0.697	0.522	0.751
7/8 - 14 UNF			1653505508						
1 - 8 UNC			1653505708			0.800	0.600	0.811	
1 - 12 UNF			1653505908						

Packed: 1 pc.

Available V coating only.

ATP

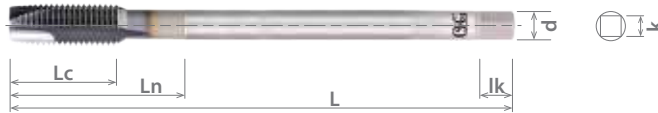
Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
	1010 1018	1035 1045	1065			4140 4340											
16535																	
SFM	80-120	80-120	80-120	40-65	35-55	25-75	25-60	25-60	60-100	70-120	70-120			40-65			

☐ good ☐ best



List 16530

A-LT-POT, Long Shank, Plug (3.5P-4.5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number	Long Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	
			Plug (3.5P - 4.5P)							
			V							L
M3 x 0.5	D3	3	1653001308	100.00	6.00	20.00	3.58	2.79	4.80	
M3 x 0.35			1653001208							
M3.5 x 0.6			1653001508		7.00	23.00	4.26	3.32	6.40	
M3.5 x 0.35			1653001408							
M4 x 0.7	D4		1653001708	125.00	9.00	27.00	4.92	3.86	7.10	
M4 x 0.5	D3		1653001608							
M4.5 x 0.75	D4		1653001908			30.00	4.92	3.86	7.10	
M4.5 x 0.5			1653001808							
M5 x 0.8	D3		1653002108	150.00	10.00	35.90	5.58	4.19	7.10	
M5 x 0.5			1653002008							
M5.5 x 0.5	1653002208									
M6 x 1.0	D5		1653002708							
M6 x 0.75	D4		1653002508	125.00	11.00	40.00	6.47	4.85	7.80	
M6 x 0.5	D3		1653002308							
M8 x 1.25	D5		4	1653003708	150.00	15.00	51.90	8.07	6.04	9.40
M8 x 1.0				1653003508						
M8 x 0.75	D4			1653003308						
M10 x 1.5	D6			1653005108						
M10 x 1.25	D5			1653004908	18.00	59.90	9.67	7.26	11.00	
M10 x 1.0				1653004708						
M10 x 0.75	D4			1653004508						
M12 x 1.75	D6			1653006708						180.00
M12 x 1.5				1653006508						
M12 x 1.25				1653006308						
M12 x 1.0				D5	1653006108					
M14 x 2.0	D7	1653007108		150.00	24.00	59.90	10.89	8.17	12.70	
M14 x 1.5	D6	1653007008								
M14 x 1.25		1653006908								
M14 x 1.0	D5	1653006808								
M15 x 1.5	D6	1653007308		160.00	24.00	64.00	12.19	9.14	14.30	
M15 x 1.0	D5	1653007208								
M16 x 2.0	D7	1653007708								
M16 x 1.5	D6	1653007508								
M16 x 1.0		D4		1653007408						
M18 x 2.5	D7	4		1653008308	180.00	72.00	13.76	10.31	15.90	
M18 x 2.0				1653008208						
M18 x 1.5	D6			1653008108						
M18 x 1.0	D5			1653008008						
M20 x 2.5	D7	3		1653008708	29.00	80.00	16.56	12.42	17.50	
M20 x 2.0		1653008608								
M20 x 1.5	4	1653008508								
M20 x 1.0		D5	1653008408							
M22 x 2.5	D7	3	1653009108	35.00	80.00	17.70	13.28	19.10		
M22 x 2.0		1653009008								
M22 x 1.5	4	1653008908								
M22 x 1.0		D5	1653008808							
M24 x 3.0	D8	3	1653009508	35.00	19.30	14.47	19.10			
M24 x 2.0	D7	1653009408								
M24 x 1.5	4	1653009308								
M24 x 1.0		D5	1653009208							

Packed: 1 pc.
Available V coating only.



Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065			4140 4340	300	400		17-4 PH	6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC
16530	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐			☐			
SFM	80-120	80-120	80-120	40-65	35-55	25-75	25-60	25-60	60-100	70-120	70-120			40-65			

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 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.

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