ACHTECK

CURCHOD
HIGH PRECISION TOOLS

XD Series

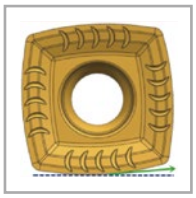
High feed Milling

www.achtecktool.com

XDLT Product Overview

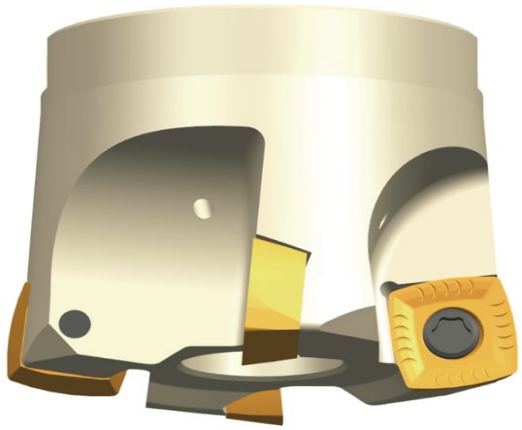
XDLT launched by Achteck is a new type high feed milling insert for aerospace field and automotive field. It's suitable for steels, stainless steels, High temperature alloys, gray cast iron and nodular cast iron milling with cutting applications of facing, ramping, plunging, helical ramping and slotting.

Product Advantages

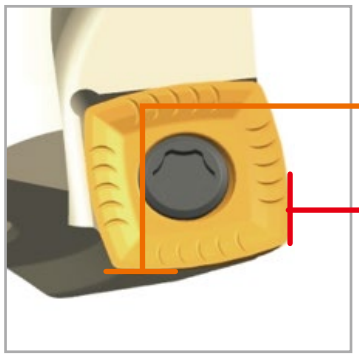
	High feed milling gets high efficiency by over 5 times of normal milling feedrate.
	Axis force leading with great arc edge makes machining stably and lightly
	Strong "S" shape geometry design ensures perfect plunging performance.

Cutter Structure Features

- Double rake angles make cutting gently and slightly.
- High Economy: 4 cutting edges.
- work piece material: P、K、M、S
- Shining Nickel-plated cutter has well corrosion resistance and wear resistance.
- Cutter dia. Range from φ32 to φ125（including125）with coolant.
- XDLT09/12 two size of inserts available.



Insert Features

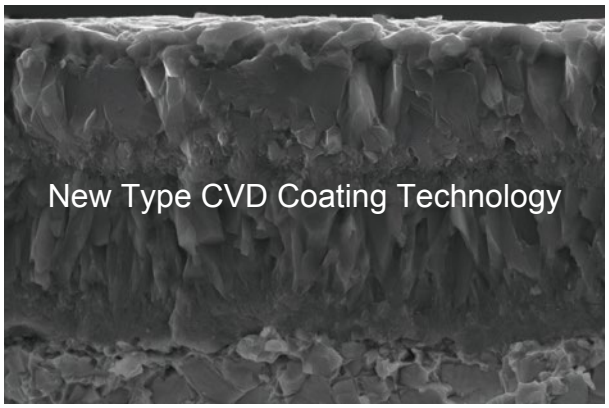


Two stage design cutting edge obtains perfect surface finishing under high speed face milling.

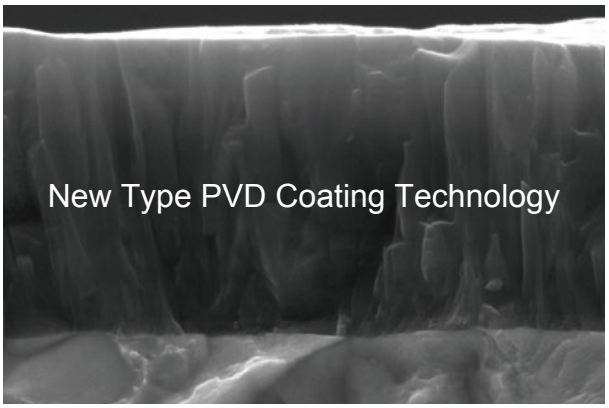
Meanwhile, the inner wall gets superior surface finishing on helical ramping.

Fine grinding locating surface gets more reliable location.

Coating Introduction



Multi-layer coating structure with perfect toughness;
Good wear resistance and high temperature oxidation resistance.
Smooth coating surface enhances work piece surface finish;
Well combination between coating layer and substrate extended tool life.



Alternate soft and hard nano-coating layer structure has high hardness and good toughness;
Good high temperature resistance and oxidation resistance.
Smooth coating surface enhances work piece surface finish;
Well combination between coating layer and substrate extended tool life.

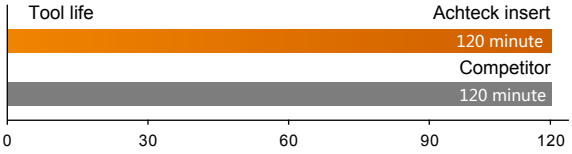
Insert Chip Breaker Introduction

HR2 → Stable type
For unfavourable machining conditions maximum cutting edge stability high feed rates.
Recommended for steel and cast iron;

MM3 → Universal type
For medium machining conditions universal application for most materials.
For good machining conditions with Low cutting forces and medium feed rates.

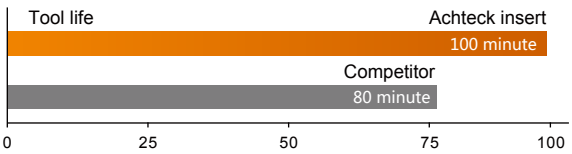
Machining Case

Work piece：Aeroplane landing gear
Material：Ti5553
Hardness：HRC38
Coolant type：Emulsion
Cutter designation：AHM15-063-Z04-A22R-XD12-C
Insert designation：XDLT 120508ER-MM3 AP301U
Cutting Parameter：Vc=35m/min fz=0.5mm/z
ap=1.0mm



Comparison Result: Achteck tool life is same as competitor

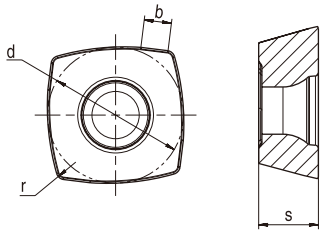
Work piece：Plastic mold
Material：Carbon steel
Hardness：HB240
Coolant type：Emulsion
Cutter designation：AHM15-052-Z04-A22R-XD12-C
Insert designation：XDLT 120508ER-MM3 AP351U
Cutting Parameter：Vc=200m/min fz=1.2mm/z
ap=1.0mm



Comparison Result: Achteck tool life is 25% higher than competitor

Insert stock

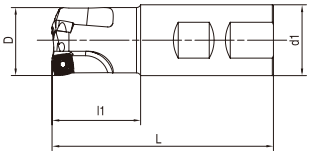
XD..09/12



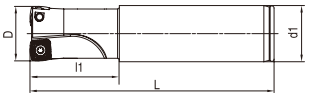
Insert	Designation	Dimensions (mm)				Grades						
						CVD coated		PVD coated				Uncoated
		l	s	r	b	AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	XDLT 090408ER-MM3	9.525	4.76	0.8	1.3			●				
	XDLT 120508ER-MM3	12.7	5.56	0.8	2.2	●	●	●	●		●	
	XDLT 120512ER-MM3	12.7	5.56	1.2	2.2	●	●	●	●		●	
	XDMW 090408ER-HR2	9.525	4.76	0.8	1.3		●					
	XDMW 120508ER-HR2	12.7	5.56	0.8	2.2		●	●				

Remark: ● Represent for standard stock

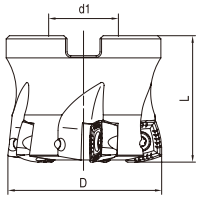
AHM15-XD09



Designation	D	d1	L	l1	apmax	Coolant	Z	Insert
AHM15-025-Z02-W25R-XD09-C	25	25	96	40	1.5		2	XD..0904
AHM15-032-Z03-W25R-XD09-C	32	32	100	40	1.5		3	

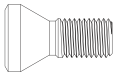
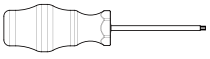


Designation	D	d1	L	l1	apmax	Coolant	Z	Insert
AHM15-025-Z02-C25R-XD09-C	25	25	200	50	1.5		2	XD..0904
AHM15-032-Z03-C32R-XD09-C	32	32	250	70	1.5		3	

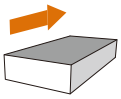


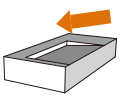
Designation	D	d1	L	apmax	Coolant	Z	Insert
AHM15-040-Z03-A16R-XD09-C	40	16	32	1.5		3	XD..0904
AHM15-040-Z04-A16R-XD09-C	40	16	32	1.5		4	
AHM15-040-Z05-A16R-XD09-C	40	16	32	1.5		5	
AHM15-050-Z05-A22R-XD09-C	50	22	40	1.5		5	
AHM15-050-Z06-A22R-XD09-C	50	22	40	1.5		6	

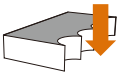
Remark: represent for coolant
represent for no coolant

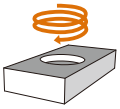
Dimensions	Spare parts		
Cutter diameter	Screw	Wrench	Torque
φ25-50			
	AST35084-60	ADT-T10	3.0Nm

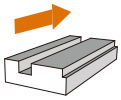
Machining application


Facing

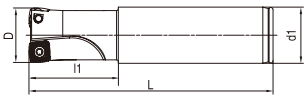

Ramping


Plunging

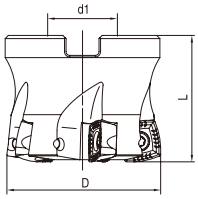

Helical ramping


Slotting

AHM15-XD12

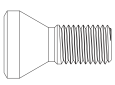
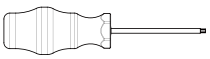


Designation	D	d1	L	l1	apmax	Coolant	Z	Insert
AHM15-032-Z02-C25R-XD12-C	32	32	250	70	2.5		2	XD..1205

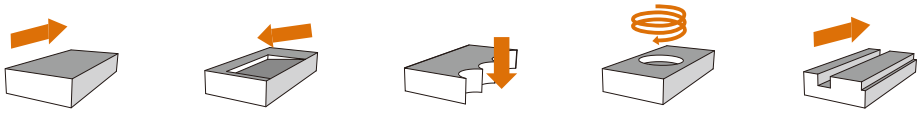


Designation	D	d1	L	apmax	Coolant	Z	Insert
AHM15-052-Z03-A22R-XD12-C	52	22	40	2.5		3	XD..1205
AHM15-052-Z04-A22R-XD12-C	52	22	40	2.5		4	
AHM15-052-Z05-A22R-XD12-C	52	22	40	2.5		5	
AHM15-063-Z04-60A22R-XD12-C	63	22	40	2.5		4	
AHM15-063-Z05-60A22R-XD12-C	63	22	40	2.5		5	
AHM15-066-Z04-63A27R-XD12-C	66	27	45	2.5		4	
AHM15-066-Z05-63A27R-XD12-C	66	27	45	2.5		5	
AHM15-080-Z05-76A27R-XD12-C	80	27	50	2.5		5	
AHM15-080-Z08-76A27R-XD12-C	80	27	50	2.5		8	
AHM15-100-Z06-96A32R-XD12-C	100	32	50	2.5		6	
AHM15-100-Z09-96A32R-XD12-C	100	32	50	2.5		9	
AHM15-125-Z08-100A40R-XD12-C	125	40	63	2.5		8	
AHM15-125-Z11-100A40R-XD12-C	125	40	63	2.5		11	

Remark: represent for coolant
represent for no coolant

Dimensions	Spare parts		
Cutter diameter	Screw	Wrench	Torque
φ32-125			
	AST4112-60	ADT-T15	3.0Nm

Machining application



Facing Ramping Plunging Helical ramping Slotting

AHM15-XD09 Recommended Cutting Conditions

ISO	Material classification	Tensile strength (N/mm²)	Hardness (HB)	Achteck Milling Grades Application Ranges																					Cutting depth and feed rate																	
				AP301U			AP351U			AP401U			AC301P			AC301K			AP351K			AW100K			XD..0904																	
				PVD			PVD			PVD			CVD			CVD			PVD			Uncoated			Profiling						Shouldering						Plunging					
				P15-35			P30-45			P20-40			P25-40			-			-			-																				
				M15-35			M30-45			M20-40			M25-40			-			-			-																				
				-			-			-			-			K10-35			K15-40			-																				
				-			S30-45			S20-40			-			-			-			-																				
				-			-			-			-			-			-			N05-15																				
				-			-			-			-			-			-			-																				
				Feed(mm/z)																																							
				0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	ap(mm)			Feed(mm/z)			ap(mm)			Feed(mm/z)			ap(mm)			Feed(mm/z)		
				Cutting speed(m/min)																					Min	-	Max	Min	-	Max	Min	-	Max	Min	-	Max	Min	-	Max	Min	-	Max
P	Non-alloyed steel	<600	<180	450	340	290	230	205	170				430	230	120										0.2	-	1.5	0.30	-	2.00	0.2	-	1.5	0.30	-	1.50	0.2	-	6.0	0.10	-	0.20
		<950	<280	320	240	200	200	180	160				380	220	120																										
	Alloyed steel	700-950	200-280	290	210	185	200	155	110				340	240	120													0.20	-	2.00				0.30	-	1.50				0.10	-	0.15
		950-1200	280-355	280	210	200	180	130	90				260	150	80																										
		1200-1400	355-415	210	170	110	140	105	70				145	105	65																										
M	Duplex stainless steel	778	230	165	150	130	270	215	155	150	115	85	225	180	125													0.20	-	1.00				0.20	-	0.80				0.10	-	0.16
	Austenitic stainless steel	675	200	270	185	90	260	180	90	185	140	105	210	145	75																										
	Precipitation-hardening stainless steel	1013	300	300	225	165	170	150	110	125	95	70	140	130	90													0.05	-	0.60				0.10	-	0.40				0.05	-	0.08
K	Grey cast iron	700	220													480	310	140	390	280	130							0.30	-	2.00				0.30	-	1.50				0.10	-	0.20
	Nodular Cast iron	880	260													450	295	140	420	300	140																				
	Malleable cast iron	800	250													500	365	230	430	290	230																				
S	Fe based alloy	943	280				45	40	30																			0.20	-	0.80				0.10	-	0.50				0.05	-	0.10
	Co based alloy	1076	320				45	40	30																																
	Ni based alloy	1177	350				45	40	30																																
	Ti-alloy	1262	370				100	70	45																																
N	Aluminum	260	75																			2750	1525	300				0.30	-	1.00				0.30	-	1.00				0.10	-	0.30
	Aluminum alloy	447	130																			2000	1125	250																	
H	Hardened steel	-	50-60HRC																									0.30	-	1.00				0.30	-	1.00				0.08	-	0.12
	Chilled cast iron	-	55HRC																																						

The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, work piece clamping and coolants. Average chip thickness=hm(hm=fzxSin KappaR)

AHM15-XD12 Recommended Cutting Conditions

Machined Materials				Achteck Milling Grades Application Ranges																					Cutting depth and feed rate														
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HB)	AP301U			AP351U			AP401U			AC301P			AC301K			AP351K			AW100K			XD..1204														
				PVD			PVD			PVD			CVD			CVD			PVD			Uncoated			Profiling						Shouldering						Plunging			
				P15-35			P30-45			P20-40			P25-40			-			-			-																	
				M15-35			M30-45			M20-40			M25-40			-			-			-																	
				-			-			-			-			K10-35			K15-40			-																	
				-			S30-45			S20-40			-			-			-			-																	
				-			-			-			-			-			-			N05-15																	
				-			-			-			-			-			-			-																	
				Feed(mm/z)																																				
				0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	ap(mm)			Feed(mm/z)			ap(mm)			Feed(mm/z)			ap(mm)			Feed(mm/z)		
				Cutting speed(m/min)																					Min	-	Max	Min	-	Max	Min	-	Max	Min	-	Max	Min	-	Max	Min	-	Max
P	Non-alloyed steel	<600	<180	450	340	290	230	205	170				430	230	120										0.5	-	2.5	0.30	-	2.00	0.5	-	2.0	0.30	-	2.00	0.5	-	9.0	0.10	-	0.25
		<950	<280	320	240	200	200	180	160				380	220	120																								
	Alloyed steel	700-950	200-280	290	210	185	200	155	110				340	240	120													0.30	-	3.00				0.30	-	2.00				0.10	-	0.18
		950-1200	280-355	280	210	200	180	130	90				260	150	80																								
		1200-1400	355-415	210	170	110	140	105	70				145	105	65																								
M	Duplex stainless steel	778	230	165	150	130	270	215	155	150	115	85	225	180	125													0.20	-	1.20				0.20	-	1.00				0.12	-	0.18
	Austenitic stainless steel	675	200	270	185	90	260	180	90	185	140	105	210	145	75																								
	Precipitation-hardening stainless steel	1013	300	300	225	165	170	150	110	125	95	70	140	130	90													0.02	-	0.08				0.10	-	0.60				0.05	-	0.10
K	Grey cast iron	700	220													480	310	140	390	280	130							0.30	-	2.00				0.30	-	2.00				0.30	-	2.00
	Nodular Cast iron	880	260													450	295	140	420	300	140																		
	Malleable cast iron	800	250													500	365	230	430	290	230																		
S	Fe based alloy	943	280				45	40	30																			0.20	-	0.80				0.30	-	2.00				0.10	-	0.25
	Co based alloy	1076	320				45	40	30																														
	Ni based alloy	1177	350				45	40	30																														
	Ti-alloy	1262	370				100	70	45																														
N	Aluminum	260	75																			2750	1525	300				0.30	-	1.50				0.30	-	1.50				0.10	-	0.40
	Aluminum alloy	447	130																			2000	1125	250															
H	Hardened steel	-	50-60HRC																									0.30	-	1.00				0.30	-	1.00				0.08	-	0.15
	Chilled cast iron	-	55HRC																																				

The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, work piece clamping and coolants. Average chip thickness=hm(hm=fzxSin KappaR)

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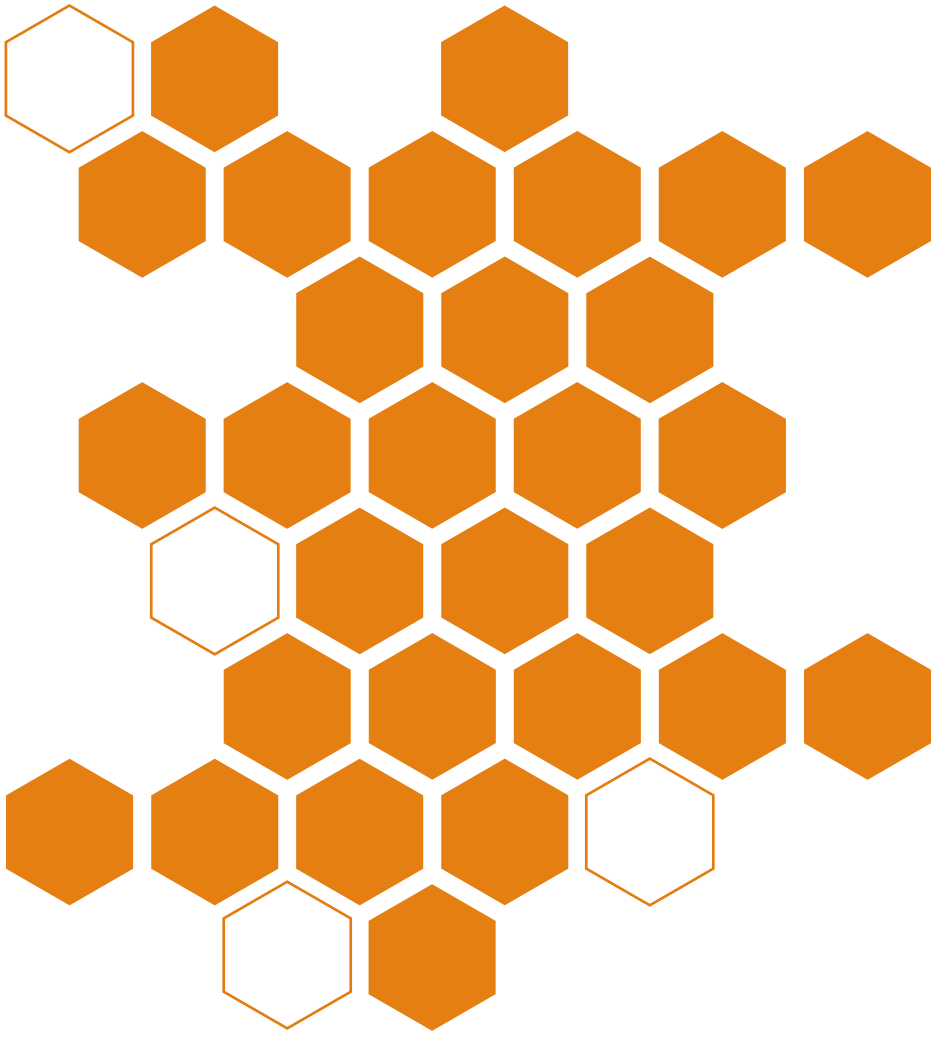
www.curchod-tools.ch



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