Deep-hole Drilling Product Introduction

Achteck has general-purpose deep-hole drilling inserts, which offer high productivity for many industries: energy, engineering machinery, injection molding, aircraft, shipbuilding, military, etc. It can achieve good hole straightness in deep hole drilling and good surface finish. Existing geometries and grades cover steel, stainless steel and heat resistant alloy drilling.

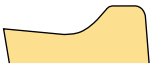
Product application and features
- The inserts can be mounted on the deep-hole drilling head.
- AP301U(N) is the first choice for drilling steel and stainless steel
- All geometries offer good chip-breaking result
- Increased efficiency due to high feed rate
- Reduces the cost per hole

Grade	Coating	Workpiece material					
		P	M	K	N	S	H
AP301U(N)	PVD	●	●			○	

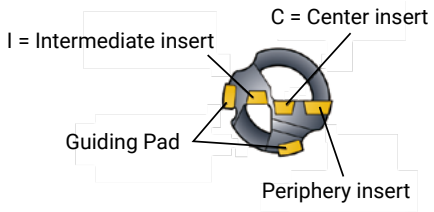
● Marked: 1st Choice ○ Marked: Supplemental application

ISO P : (P15-P35) General-purpose PVD coating with excellent wear-resistance and toughness.
ISO M :(M15-M35) General-purpose grade for ISO-M applications, PVD coating with excellent toughness and resistance to built-up edges.

Geometry Types and Features

Geometry	Edge shape	Application
DH		● For general purpose. ● Suitable for high cutting speed and feed. ● Good chip control in most of materials.
DL		● Suitable for long chip materials (such as low carbon alloyed steel and duplex stainless steel). ● Obtain a reliable production process in drilling materials where chip jamming can be a problem.
LH		● With open geometry; ● Suitable for high cutting speed and feed.

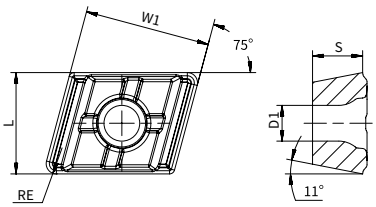
Ejector Drill Matching Table

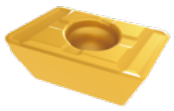


Hole diameter range (mm)	Center insert	Hole diameter range (mm)	Intermediate insert	Hole diameter range (mm)	Periphery insert	Hole diameter range (mm)	Guiding pad
26.00-28.70	EPMT 050308C	26.00-31.00	EPMT 050308I	26.00-31.00	APHT 060308P	26.00-31.00	GPAD-06A
28.71-33.99	EPMT 06T308C	31.01-34.99	EPMT 06T308I	31.01-38.99	APHT 08T308P	31.01-39.60	GPAD-07A
34.00-43.00	EPMT 08T308C	35.00-54.99	EPMT 08T308I	39.00-49.99	APHT 09T308P	39.61-47.00	GPAD-08A
43.01-47.00	EPMT 10T308C	55.00-65.00	EPMT 12T308I	50.00-65.00	APHT 11T308P	47.01-54.99	GPAD-10A
47.01-49.99	EPMT 12T308C	-	-	-	-	55.00-65.00	GPAD-12A
50.00-57.99	EPMT 10T308C	-	-	-	-	-	-
58.00-65.00	EPMT 12T308C	-	-	-	-	-	-

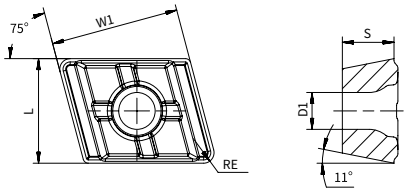
Deep-Hole Drilling Inserts

DH geometry



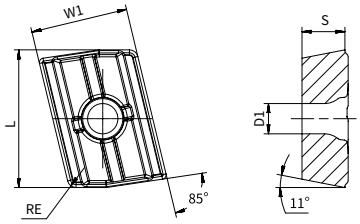
Center insert	Product code	Dimensions (in)					Stock
		L	W1	S	RE	D1	
	**EPMT 050308C-DH AP301U(N)**	0.219	0.315	0.125	0.031	0.098	●
	EPMT 06T308C-DH AP301U(N)	0.250	0.389	0.156	0.031	0.110	●
	EPMT 08T308C-DH AP301U(N)	0.313	0.389	0.156	0.031	0.110	●
	EPMT 10T308C-DH AP301U(N)	0.375	0.389	0.156	0.031	0.110	●
	EPMT 12T308C-DH AP301U(N)	0.500	0.389	0.156	0.031	0.110	●

● Stock available



Intermediate insert	Product code	Dimensions (in)					Stock
		L	W1	S	RE	D1	
	**EPMT 050308I-DH AP301U(N)**	0.219	0.315	0.125	0.031	0.098	●
	EPMT 06T308I-DH AP301U(N)	0.250	0.389	0.156	0.031	0.110	●
	EPMT 08T308I-DH AP301U(N)	0.313	0.389	0.156	0.031	0.110	●
	EPMT 12T308I-DH AP301U(N)	0.500	0.389	0.156	0.031	0.110	●

● Stock available

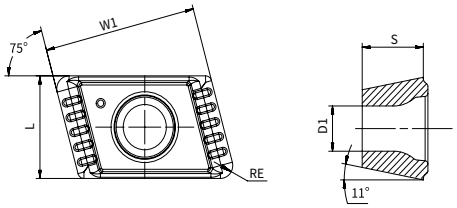


Periphery insert	Product code	Dimensions (in)					Stock
		L	W1	S	RE	D1	
	**APHT 060308P-DH AP301U(N)**	0.256	0.315	0.125	0.031	0.098	●
	APHT 08T308P-DH AP301U(N)	0.335	0.354	0.156	0.031	0.110	●
	APHT 09T308P-DH AP301U(N)	0.380	0.354	0.156	0.031	0.110	●
	APHT 11T308P-DH AP301U(N)	0.502	0.354	0.156	0.031	0.110	●

● Stock available

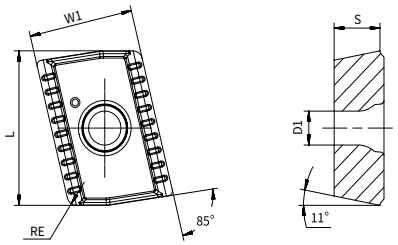
Deep-Hole Drilling Inserts

DL geometry



Intermediate insert	Product code	Dimensions (in)					Stock
		L	W1	S	RE	D1	
	**EPMT 050308I-DL AP301U(N)**	0.219	0.315	0.125	0.031	0.098	●
	EPMT 06T308I-DL AP301U(N)	0.250	0.389	0.156	0.031	0.110	●
	EPMT 08T308I-DL AP301U(N)	0.313	0.389	0.156	0.031	0.110	●
	EPMT 12T308I-DL AP301U(N)	0.500	0.389	0.156	0.031	0.110	●

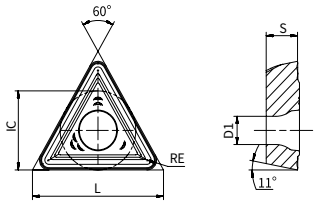
● Stock available



Periphery insert	Product code	Dimensions (in)					Stock
		L	W1	S	RE	D1	
	**APHT 060308P-DL AP301U(N)**	0.256	0.315	0.125	0.031	0.098	●
	APHT 08T308P-DL AP301U(N)	0.335	0.354	0.156	0.031	0.110	●
	APHT 09T308P-DL AP301U(N)	0.380	0.354	0.156	0.031	0.110	●
	APHT 11T308P-DL AP301U(N)	0.502	0.354	0.156	0.031	0.110	●

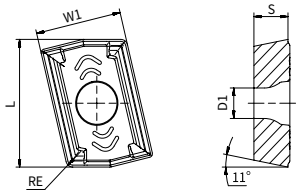
● Stock available

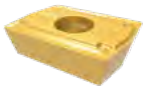
Deep-Hole Drilling Inserts
DH geometry



Center/Intermediate insert	Product code	Dimensions (in)					Stock
		L	IC	S	RE	D1	
	**TPMT 16T312R-DH AP301U(N)**	0.650	0.375	0.156	0.047	0.134	●
	TPMT 220612R-DH AP301U(N)	0.866	0.500	0.250	0.047	0.173	●

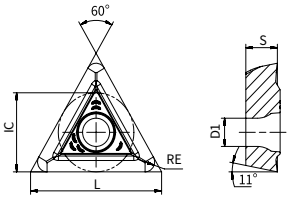
● Stock available



Periphery insert	Product code	Dimensions (in)					Stock
		L	W1	S	RE	D1	
	**APMT 13T308-DH AP301U(N)**	0.575	0.394	0.156	0.031	0.134	●
	APMT 180608-DH AP301U(N)	0.811	0.453	0.250	0.031	0.173	●

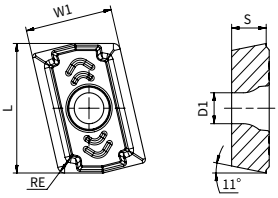
● Stock available

Deep-Hole Drilling Inserts
LH geometry



Center/Intermediate insert	Product code	Dimensions (in)					Stock
		L	IC	S	RE	D1	
	**TPMT 16T312R-LH AP301U(N)**	0.650	0.375	0.156	0.047	0.134	●
	TPMT 220612R-LH AP301U(N)	0.866	0.500	0.250	0.047	0.173	●

● Stock available

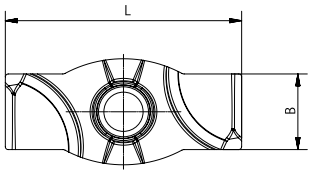


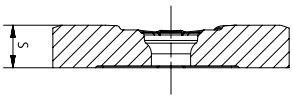
Periphery insert	Product code	Dimensions (in)					Stock
		L	W1	S	RE	D1	
	**APMT 13T308-LH AP301U(N)**	0.575	0.394	0.156	0.031	0.134	●
	APMT 180608-LH AP301U(N)	0.811	0.453	0.250	0.031	0.173	●

● Stock available

Deep-Hole Drilling Inserts

Guiding pad

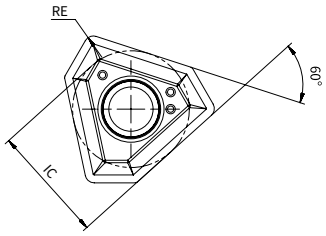


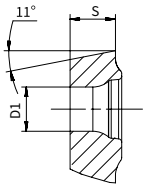


Guiding pad	Product code	Dimensions (in)			Stock
		B	L	S	
	**GPAD-07A AC301K**	0.272	0.787	0.138	●
	GPAD-08A AC301K	0.315	0.984	0.177	●
	GPAD-10A AC301K	0.394	1.181	0.177	●

● Stock available

TPMX Series





Sharp	Product code	Dimensions (in)				Stock
		S	IC	RE	D1	
	**TPMX 1403R-DH AP301U(N)**	0.138	0.333	0.031	0.113	●
	TPMX 1704R-DH AP301U(N)	0.157	0.406	0.031	0.154	●
	TPMX 2405R-DH AP301U(N)	0.217	0.559	0.047	0.173	●
	TPMX 2405L-DH AP301U(N)	0.217	0.559	0.047	0.173	●
	TPMX 2807R-DH AP301U(N)	0.295	0.669	0.063	0.217	●

● Stock available

Recommended Cutting Speed for Materials(Dia 0.98-2.56in)

Workpiece material			Brinell hardness (HB)	Grade			Cutting speed Vc ft/min	Feed fn in/rev	
				Insert				Drilling dia in	
				P	I	C		0.985-1.692	1.693-2.559
P	Unalloyed steel	C=0.05-0.10%	125	AP301U(N)			230-426	0.004-0.016	0.006-0.018
		C=0.10-0.25%	125				230-426	0.004-0.016	0.006-0.018
		C=0.25-0.55%	150				230-426	0.004-0.016	0.006-0.018
		C=0.55-0.80%	170				230-426	0.004-0.016	0.006-0.018
	High carbon steel	Carbon tool steel	210	AP301U(N)			230-394	0.004-0.016	0.008-0.018
	Low-alloyed steel	Non-Hardened	180	AP301U(N)			180-361	0.004-0.016	0.008-0.018
		Tempered	275				230-394	0.004-0.016	0.008-0.018
		Tempered	350				230-394	0.004-0.016	0.008-0.018
	High-alloyed steel	Annealed	200	AP301U(N)			180-361	0.004-0.015	0.008-0.016
		Hardened tool steel	325				180-361	0.008-0.015	0.008-0.016
	Cast steel	Non-alloyed steel	180	AP301U(N)			180-361	0.004-0.016	0.008-0.018
		Low-alloy (alloy<5%)	200				180-361	0.004-0.016	0.008-0.018
M	Stainless steel	Non-Hardened/Ferritic/martensitic	200	AP301U(N)			131-361	0.004-0.016	0.008-0.018
		Austenitic	200				131-361	0.004-0.016	0.008-0.018
		Austenitic, precipitation hardened (PH)	300				131-361	0.004-0.013	0.008-0.014
		Austenitic/ferritic, duplex	230				131-262	0.004-0.013	0.008-0.014
K	Malleable cast iron	Ferritic	200	AP301U(N)			262-394	0.004-0.015	0.009-0.016
		Pearlitic	260				262-394	0.004-0.015	0.009-0.016
	Grey cast iron	Low tensile strength	180	AP301U(N)			197-361	0.004-0.015	0.009-0.016
		High tensile strength	245				197-361	0.004-0.015	0.009-0.016
	Nodular cast iron	Ferritic	160	AP301U(N)			164-361	0.004-0.015	0.009-0.016
		Pearlitic	250				164-361	0.004-0.015	0.009-0.016
	GGV (CGI)		230						
N	Wrought aluminium alloys	non-aging	30	AP301U(N)			213-492	0.004-0.013	0.009-0.016
		aged	100				213-492	0.004-0.013	0.008-0.013
	Cast aluminium alloys	≤ 12% Si, non-aging	75	AP301U(N)			213-492	0.004-0.013	0.008-0.013
		≤ 12% Si, aged	90				213-492	0.004-0.013	0.008-0.013
		> 12% Si, non-aging	130				213-492	0.004-0.013	0.008-0.013
	Magnesium alloy		70						
	Copper and copper alloys (bronze/brass)	Unalloyed, electrolytic copper	100	AP301U(N)			213-492	0.004-0.013	0.008-0.013
		Brass, bronze, red brass	90	AP301U(N)			213-492	0.004-0.013	0.008-0.013
		Cu alloys, short-chip	110				213-492	0.004-0.013	0.008-0.013
		High tensile, Ampco alloy	300				213-492	0.004-0.013	0.008-0.013
S	Heat-resistant alloys	Fe-based annealed	200	AP301U(N)			33-180	0.004-0.012	0.008-0.013
		Fe-based hardened	280				33-180	0.004-0.012	0.008-0.013
		Ni or Co-based annealed	250				33-180	0.004-0.012	0.008-0.013
		Ni or Co-based hardened	350				33-180	0.004-0.012	0.008-0.013
		Ni or Co-based cast	320				33-180	0.004-0.012	0.008-0.013
	Titanium alloys	Pure titanium	200	AP301U(N)			98-197	0.004-0.012	0.008-0.013
		α alloys	375				98-197	0.004-0.012	0.008-0.013
		α and β alloys	375				98-197	0.004-0.012	0.008-0.013
		β alloys	410				98-197	0.004-0.012	0.008-0.013
H	Hardened steel	Hardened and tempered	43-47 HRC						
	Chilled cast iron		47-60 HRC						

*) Insert position-P , I , C
P=peripheral insert , I=intermediate insert, C=center insert

Recommended Cutting Speed for Materials(Dia ≥2.50in)

Workpiece material			Brinell hardness (HB)	Grade			Cutting speed Vc ft/min	Feed fn in/rev
				Insert				Drilling dia in
				P	I	C		≥2.5
P	Unalloyed steel	C=0.05-0.10%	125	AP301U(N)			262-328	0.007-0.014
		C=0.10-0.25%	125				262-328	0.007-0.014
		C=0.25-0.55%	150				262-328	0.007-0.014
		C=0.55-0.80%	170				262-328	0.007-0.014
	High carbon steel	Carbon tool steel	210	AP301U(N)			230-328	0.007-0.012
	Low-alloyed steel	Non-Hardened	180	AP301U(N)			197-328	0.006-0.014
		Tempered	275				230-328	0.007-0.012
		Tempered	350				230-328	0.007-0.012
	High-alloyed steel	Annealed	200	AP301U(N)			197-328	0.006-0.012
		Hardened tool steel	325				197-328	0.006-0.012
	Cast steel	Non-alloyed steel	180	AP301U(N)			164-328	0.006-0.012
		Low-alloy (alloy<5%)	200				164-328	0.006-0.012
M	Stainless steel	Non-Hardened/Ferritic/martensitic	200	AP301U(N)			164-295	0.006-0.014
		Austenitic	200				164-295	0.006-0.014
		Austenitic, precipitation hardened (PH)	300					
		Austenitic/ferritic, duplex	230					
K	Malleable cast iron	Ferritic	200	AP301U(N)				
		Pearlitic	260					
	Grey cast iron	Low tensile strength	180	AP301U(N)				
		High tensile strength	245					
	Nodular cast iron	Ferritic	160	AP301U(N)				
		Pearlitic	250					
	GGV (CGI)		230					
N	Wrought aluminium alloys	non-aging	30	AP301U(N)			213-426	0.004-0.012
		aged	100				213-426	0.004-0.012
	Cast aluminium alloys	≤ 12% Si, non-aging	75	AP301U(N)			213-426	0.004-0.012
		≤ 12% Si, aged	90				213-426	0.004-0.012
		> 12% Si, non-aging	130				213-426	0.004-0.012
	Magnesium alloy		70					
	Copper and copper alloys (bronze/brass)	Unalloyed, electrolytic copper	100	AP301U(N)			213-426	0.004-0.012
		Brass, bronze, red brass	90	AP301U(N)			213-426	0.004-0.012
		Cu alloys, short-chip	110				213-426	0.004-0.012
		High tensile, Ampco alloy	300				213-426	0.004-0.012
S	Heat-resistant alloys	Fe-based annealed	200	AP301U(N)			66-213	0.006-0.012
		Fe-based hardened	280				66-213	0.006-0.012
		Ni or Co-based annealed	250				66-213	0.006-0.012
		Ni or Co-based hardened	350				66-213	0.006-0.012
		Ni or Co-based cast	320					
	Titanium alloys	Pure titanium	200	AP301U(N)			98-328	0.006-0.012
		α alloys	375				98-328	0.006-0.012
		α and β alloys	375				98-328	0.006-0.012
		β alloys	410				98-328	0.006-0.014
H	Hardened steel	Hardened and tempered	43-47 HRC					
	Chilled cast iron		47-60 HRC					

*) Insert position-P , I , C
P=peripheral insert , I=intermediate insert, C=center insert