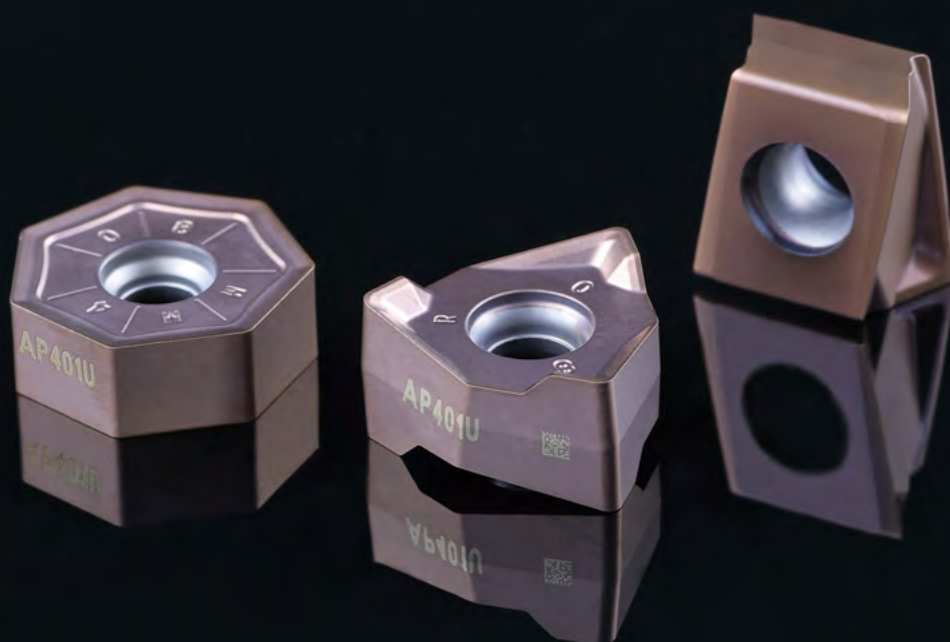


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Milling Inserts

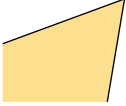






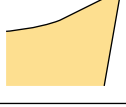

Geometry Application Guide

Materials				Milling geometry application table						
				FM2	MM3	MM4	MR2	MR6	RR2	HR2
ISO	Material classification	Tensile strength (N/mm ²)	Hardness (HB)	Suitable for machining aluminium alloy	Light cutting	General purpose	Medium machining	Roughing	Heavy roughing	Roughing
P	Unalloyed steel	<600	<180	-	●	●	●	●	-	-
		<950	<280	-	●	●	●	●	-	-
	Alloyed steel	700-950	200-280	-	●	●	●	●	-	-
		950-1200	280-355	-	●	●	●	●	-	-
		1200-1400	355-415	-	●	●	●	●	-	-
M	Duplex stainless steel	778	230	-	●	●	●	-	-	-
	Austenitic stainless steel	675	200	-	●	●	●	-	-	-
	Precipitation-hardening stainless steel	1013	300	-	●	●	●	-	-	-
K	Grey cast iron	700	220	-	-	●	●	●	●	●
	Nodular cast iron	880	260	-	-	●	●	●	●	●
	Malleable cast iron	800	250	-	-	●	●	●	●	●
N	Aluminum	260	75	●	-	-	-	-	-	-
	Aluminum alloy	447	130	●	-	-	-	-	-	-
S	Fe-based alloy	943	280	-	●	●	●	-	-	-
	Co-based alloy	1076	320	-	●	●	●	-	-	-
	Ni-based alloy	1177	350	-	●	●	●	-	-	-
	Ti-alloy	1262	370	-	●	●	●	-	-	-
H	Hardened steel	-	50-60HRC	-	-	●	●	-	-	-
	Chilled cast iron	-	55HRC	-	-	●	●	-	-	-

- 1st choice
- ◐ 2nd choice
- Inapplicable

Milling cutters

Milling Geometry Introduction

Insert geometry	Edge shape	Application
FM2		<ul style="list-style-type: none"> ▪ Low cutting force, for weak machining condition ▪ Sharp geometry ▪ For aluminium material machining
MM3		<ul style="list-style-type: none"> ▪ Low cutting force, for weak machining condition ▪ Sharp geometry ▪ For steel, stainless-steel and heat resistant alloy machining.
MM4		<ul style="list-style-type: none"> ▪ For medium machining condition ▪ Universal geometry ▪ For machining most materials
MR2		<ul style="list-style-type: none"> ▪ For medium or better machining condition ▪ Universal geometry ▪ For machining most materials
MR6		<ul style="list-style-type: none"> ▪ For stable machining condition ▪ Roughing geometry ▪ For machining most materials
HR2		<ul style="list-style-type: none"> ▪ For stable machining condition ▪ Roughing geometry ▪ Mainly for cast iron machining
RR2		<ul style="list-style-type: none"> ▪ For stable machining condition ▪ Heavy roughing geometry ▪ Mainly for cast iron and steel machining
IT		<ul style="list-style-type: none"> ▪ Sharp geometry, for specified product
DT		<ul style="list-style-type: none"> ▪ Universal geometry, for specified product

Grade Application Guide

Milling grade ISO group															
Material Group	Materials	ISO	coated											Uncoated	ISO
			PVD	PVD	PVD	PVD	PVD	PVD	PVD	PVD	PVD	CVD	CVD		
P	unalloy steels / Alloyed steels	P01												P01	
		P05												P05	
		P10												P10	
		P15												P15	
		P20	AP251U											P20	
		P25										AC301P		P25	
		P30		AP351U	AP351M									P30	
		P35												P35	
		P40												P40	
		P45												P45	
P50												P50			
M	Stainless steels	M01											M01		
		M05											M05		
		M10											M10		
		M15	AP251U										M15		
		M20											M20		
		M25											M25		
		M30			AP351M								M30		
		M35					AP403S	AP403M					M35		
		M40											M40		
		M45											M45		
M50											M50				
K	Cast iron	K01											K01		
		K05											K05		
		K10											K10		
		K15		AP151H									K15		
		K20	AP251K								AC301K		K20		
		K25											K25		
		K30											K30		
		K35											K35		
		K40											K40		
		K45											K45		
K50											K50				
N	Aluminum/ Aluminum alloys	N01											N01		
		N05											N05		
		N10										AW100K	N10		
		N15											N15		
		N20											N20		
		N25											N25		
		N30											N30		
S	Heat resistant alloys	S01											S01		
		S05											S05		
		S10											S10		
		S15											S15		
		S20											S20		
		S25											S25		
		S30		AP351M									S30		
		S35											S35		
		S40			AP403S	AP403M							S40		
		S45											S45		
S50											S50				
H	Hardened steels/ Chilled cast iron	H01											H01		
		H05											H05		
		H10	AP151H										H10		
		H15											H15		
		H20											H20		
		H25											H25		
		H30											H30		

Milling cutters

Grade Application Guide

Materials				Milling grade application										
				PVD coated						CVD coated		PVD coated		Uncoated
ISO	Material classification	Tensile strength (N/mm ²)	Hardness (HB)	AP251U	AP351U	AP351M	AP401U	AP403S	AP403M	AC301P	AC301K	AP251K	AP151H	AW100K
P	Unalloyed steel	<600	<180	●	●	●	●		●	●	●	-	-	-
		<950	<280	●	●	●	●		●	●	●	-	-	-
	Alloyed steel	700-950	200-280	●	●	●	●		●	●	●	-	-	-
		950-1200	280-355	●	●	●	●		●	●	●	-	-	-
		1200-1400	355-415	●	●	●	●		●	●	●	-	-	-
M	Duplex stainless steel	778	230	○	●	●	●	●	●	○	-	-	-	-
	Austenitic stainless steel	675	200	○	●	●	●	●	●	○	-	-	-	-
	Precipitation-hardening stainless steel	1013	300	○	●	●	●	●	●	○	-	-	-	-
K	Grey cast iron	700	220	-	-	-	-	-	-	-	●	●	●	-
	Nodular cast iron	880	260	-	-	-	-	-	-	-	●	●	●	-
	Malleable cast iron	800	250	-	-	-	-	-	-	-	●	●	●	-
N	Aluminum	260	75	-	-	-	-	-	-	-	-	-	-	●
	Aluminum alloy	447	130	-	-	-	-	-	-	-	-	-	-	●
S	Fe-based alloy	943	280	-	○	●	○	●	●	-	-	-	-	-
	Co-based alloy	1076	320	-	○	●	○	●	●	-	-	-	-	-
	Ni-based alloy	1177	350	-	○	●	○	●	●	-	-	-	-	-
	Ti-alloy	1262	370	-	○	●	○	●	●	-	-	-	-	○
H	Hardened steel	-	50-60HRC	-	-	-	-	-	-	-	-	-	●	-
	Chilled cast iron	-	55HRC	-	-	-	-	-	-	-	-	-	●	-

- 1st choice
- 2nd choice
- Inapplicable

Milling Grade Description

Grade for Normal Milling

P Steel, alloyed steel, unalloyed steel

Basic grade

AP251U P25(P15-P35)

PVD-coated grade, suitable for most applications. First choice for steel machining. It is recommended to be used in rough to finish machining of steel under stable working conditions, good for dry and wet machining with small cutting width, complex tool path and sticky materials.

AC301P P35(P25-P40)

CVD coated grade is suitable for big cutting depth, medium to high speed milling of steel under bad machining conditions.

Supplemental grade

AP351M P35(P25-P45)

PVD coated grade, medium hardness substrate, which is a supplement for AP251U in steel milling when high toughness is required.

AP351U P35(P30-P45)

PVD coated grade, medium hardness substrate, which is a supplement for AP251U in steel milling when high-toughness is required.

M Stainless steel, austenite stainless steel, martensite stainless steel

Basic grade

AP351M M35(M25-M45)

PVD coated grade is used for milling stainless steel and steel at medium and low speed under bad machining conditions.

AP403M M35(M35-M50)

Ultra-thick PVD coated grade is the first choice for stainless steel milling. It is suitable for rough milling of stainless steel under bad machining conditions.

Supplemental grade

AP251U M25(M15-M35)

PVD coated grade is used in rough and finish milling of stainless steel under very stable machining conditions.

AP403S M15(M35-M50)

PVD coated grade, the substrate has both toughness and hot hardness characteristics, and is the first choice for titanium alloy machining, as well as the machining of heat resistant alloy under weak rigidity. It is applicable to the milling at low cutting speed and can get longer tool life.

AP351U M35(M30-M45)

PVD coated grade, medium hardness substrate, which is a supplement for AP251U in steel milling when high-toughness is requested. On the way to phase out.

K Cast iron, grey cast iron, nodular cast iron

Basic grade

AC301K K25(K10-K35)

CVD coated grade, suitable for semi-finish milling and rough milling of grey cast iron at medium and high cutting speed, Recommended for dry cutting conditions, can achieve longer tool life.

AP251K K25(K15-K40)

PVD coated grade is suitable for semi-finish and rough milling of grey cast iron and nodular cast iron at medium and low cutting speed, and has good tool life under dry and wet conditions.

Supplemental grade

AP151H K15(K10-K20)

PVD coated grade is suitable for finish milling of grey cast iron and nodular cast iron, which can get constant surface quality and longer tool life.

N Non-ferrous metals

Basic grade

AW100K N15 (N10-N20)

Uncoated grade, combined with sharp cutting edge, used in aluminum alloy milling.

S Heat resistant alloy

Basic grade

AP403S S15(S35-S50)

PVD coated grade, the substrate has both toughness and red hardness characteristics, and is the first choice for titanium alloy machining, as well as the machining of heat resistant alloy under weak rigidity. It is applicable to the milling at low cutting speed and can get longer tool life.

Supplemental grade

AP351M S35(S25-S45)

PVD coated grade is suitable for semi-finishing to light rough machining of heat resistant alloy and titanium alloys.

AP403M S35(S35-S50)

The super-thick PVD coated grade is suitable for low-speed milling of heat resistant alloy and titanium alloys when high toughness is requested, especially in case of large cutting width.

H Hard material, hardened steel

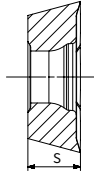
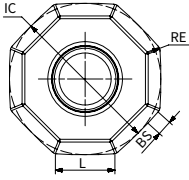
Basic grade

AP151H H15(H10-H20)

PVD coated grade, suitable for milling hardened steel, can be used in rough and finish milling, meeting the needs of most occasions.

OD..06

Positive octagonal milling inserts



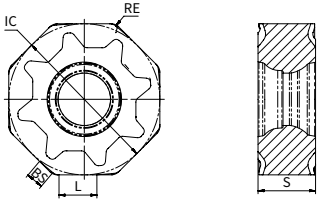
Inserts	Product code	Machining conditions					Machining conditions						
		Dimension (in)					● Good condition ● General condition ✖ Bad condition						
		L	IC	S	RE	BS	P			M	K		N
						AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K	
	ODET 0605APFN-FM2	0.236	0.630	0.219	0.031	0.063							●
	ODMT 060508EN-MM3	0.236	0.630	0.219	0.031	-	●	●	●		●	●	
	ODMT 060512EN-MM3	0.236	0.630	0.219	0.047	-	●						
	ODHT 0605APEN-MM3	0.236	0.630	0.219	0.031	0.063	●	●			●	●	
	ODEW 0605APSR-HR2	0.236	0.630	0.219	-	0.063					●	●	
	ODMW 060512EN-HR2	0.236	0.630	0.219	0.047	-					●	●	



●: Stock available

Milling cutters

ON..05

Negative octagonal milling inserts

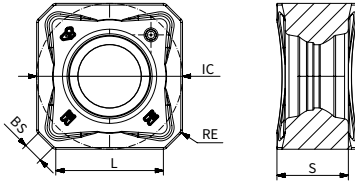


Inserts	Product code	Machining conditions					● Good condition ● General condition ✖ Bad condition						
		Dimension (in)					P			M	K		N
		L	IC	S	RE	BS	AP25TU	AP35TU	AC301P	AP403M	AC301K	AP251K	AW100K
	ONHU 050408-MM3	0.157	0.500	0.187	0.031	-	●						
	ONMU 050408-MM4	0.157	0.500	0.187	0.031	-	●	●			●	●	
	ONHU 0504ZNR-MM3	0.157	0.500	0.187	0.031	0.055	●						

●: Stock available

SN..12

Negative short wiper milling inserts(applicable to AFM45-SN12 milling cutter)

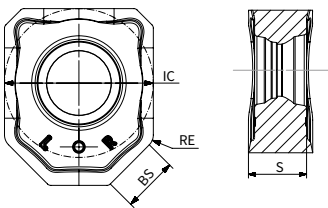


Inserts	Product code	Dimension (in)					Machining conditions							
		L	IC	S	RE	BS	● Good condition ● General condition ✖ Bad condition							
							P			M	K		N	
							AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K	
	SNHX 1206ANN-FM2	0.366	0.500	0.246	0.020	0.071								●
	SNGX 1206ANN-MM3	0.370	0.500	0.246	0.016	0.071	●	●	●		●	●		
	SNGX 1206ANN-MM4	0.370	0.500	0.246	0.016	0.071	●	●	●	●	●	●		
	SNGX 1206ANN-MR6	0.370	0.500	0.246	0.016	0.071	●	●	●		●	●		
	SNGX 1206ANN-RR2	0.366	0.500	0.246	0.020	0.071	●	●	●		●	●		
	SNMX 1206ANN-MM3	0.370	0.500	0.246	0.016	0.071	●	●	●		●	●		
	SNMX 1206ANN-MM4	0.370	0.500	0.246	0.016	0.071	●	●	●	●	●	●		
	SNMX 1206ANN-MR6	0.370	0.500	0.246	0.016	0.071	●	●	●		●	●		

●: Stock available

SNHX12

Negative long wiper milling inserts(applicable to AFM45-SN12 milling cutter)



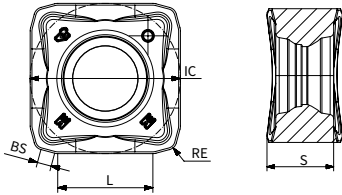
Inserts	Product code	Dimension (in)					Machining conditions							
		L	IC	S	RE	BS	● Good condition ● General condition ✖ Bad condition							
							P			M	K		N	
							AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K	
	SNHX 1206ANN-W	-	0.500	0.246	0.047	0.263	●					●		

●: Stock available

Milling cutters

SN..12

Negative short wiper milling inserts (applicable to AFM75-SN12 milling cutter)

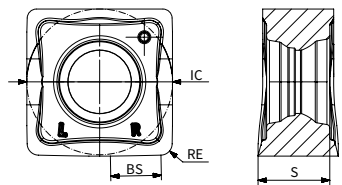


Inserts	Product code	Dimension (in)					Machining conditions						
		L	IC	S	RE	BS	● Good condition ● General condition ✖ Bad condition						
							P			M	K		N
							AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
	SNGX 1206ENN-MM3	0.319	0.500	0.250	0.032	0.047	●	●	●		●	●	
	SNGX 1206ENN-MM4	0.319	0.500	0.250	0.032	0.047	●	●	●		●	●	
	SNGX 1206ENN-MR6	0.319	0.500	0.250	0.032	0.047	●	●	●		●	●	
	SNMX 1206ENN-MM4	0.319	0.500	0.250	0.032	0.047			●			●	

● : Stock available

SNHX12

Negative long wiper milling inserts (applicable to AFM75-SN12 milling cutter)

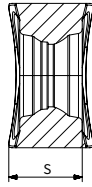
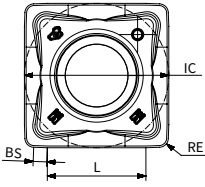


Inserts	Product code	Dimension (in)					Machining conditions						
		L	IC	S	RE	BS	● Good condition ● General condition ✖ Bad condition						
							P			M	K		N
							AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
	SNHX 1206ENN-W	-	0.500	0.246	0.024	0.047	●				●		

● : Stock available

SN..12

Negative short wiper milling inserts (applicable to AFM88-SN12 milling cutter)

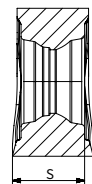
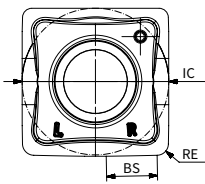


Inserts	Product code	Dimension (in)					Machining conditions							
		L	IC	S	RE	BS	● Good condition ● General condition ✖ Bad condition							
							P			M	K		N	
						AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K		
	SNHX 1206ZNN-FM2	0.343	0.500	0.254	0.031	0.047								●
	SNGX 1206ZNN-MM4	0.343	0.500	0.254	0.031	0.047	●	●	●	●	●	●		
	SNGX 1206ZNN-MR6	0.343	0.500	0.254	0.031	0.047	●	●	●		●	●		
	SNGX 1206ZNN-MM3	0.343	0.500	0.254	0.031	0.047	●	●	●		●	●		
	SNMX 1206ZNN-MM4	0.343	0.500	0.254	0.031	0.047	●			●		●		

●: Stock available

SNHX12

Negative long wiper milling inserts (applicable to AFM88-SN12 milling cutter)



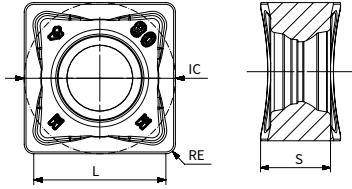
Inserts	Product code	Dimension (in)					Machining conditions							
		L	IC	S	RE	BS	● Good condition ● General condition ✖ Bad condition							
							P			M	K		N	
						AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K		
	SNHX 1206ZNN-W	-	0.500	0.246	0.039	0.173	●				●			

●: Stock available

Milling cutters

SN..12

Negative square milling inserts with corner radius

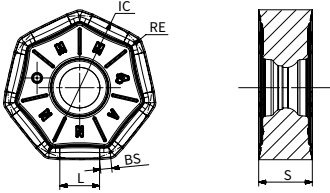


Inserts	Product code	Machining conditions					● Good condition ● General condition ✖ Bad condition						
		Dimension (in)					P		M	K		N	
		L	IC	S	RE	BS	AP25TU	AP35TU	AC301P	AP403M	AC301K	AP251K	AW100K
	SNGX 120608-MM4	0.437	0.500	0.252	0.031	-	●	●	●		●	●	
	SNGX 120612-MM4	0.406	0.500	0.252	0.047	-	●						
	SNMX 120608-MM4	0.437	0.500	0.252	0.031	-	●	●	●		●	●	
	SNMX 120612-MM3	0.406	0.500	0.252	0.047	-	●	●	●		●	●	
	SNMX 120612-MM4	0.406	0.500	0.252	0.047	-	●	●	●		●	●	
	SNMX 120612-MR6	0.406	0.500	0.252	0.047	-	●	●	●		●	●	
	SNMX 120612-RR2	0.406	0.500	0.252	0.047	-	●	●	●		●	●	
	SNMX 120620-MM4	0.343	0.500	0.252	0.079	-	●	●	●		●	●	
	SNMX 120620-RR2	0.343	0.500	0.252	0.079	-	●	●	●		●	●	
	SNMX 120612R-MM4	0.343	0.500	0.252	0.047	-	●	●	●	●	●	●	

●: Stock available

XN..07/09ANN

Negative heptagonal milling inserts with short wiper



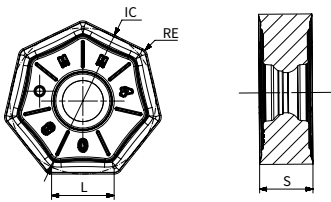
Inserts	Product code	Dimension (in)					Machining conditions						
		L	IC	S	RE	BS	● Good condition			● General condition			
							● Bad condition	●	●	●	●	●	●
						P			M	K		N	
						AP25TU	AP35TU	AC301P	AP403M	AC301K	AP251K	AW100K	
	XNGU 0705ANN-MM3	0.276	0.571	0.197	0.031	0.043	●	●			●		
	XNGU 0705ANN-MM4	0.276	0.571	0.197	0.031	0.043	●				●		
	XNMU 0705ANN-MM4	0.276	0.571	0.197	0.031	0.043	●	●	●		●	●	
	XNMU 0705ANN-MR6	0.276	0.571	0.197	0.031	0.043	●	●			●	●	
	XNGU 0906ANN-MM3	0.362	0.748	0.231	0.031	0.055	●	●	●		●		
	XNGU 0906ANN-MM4	0.362	0.748	0.231	0.031	0.055	●	●	●		●		
	XNMU 0906ANN-MR6	0.362	0.748	0.231	0.031	0.055	●				●	●	


●: Stock available

Milling cutters

XN..07/09

Negative heptagonal milling inserts with corner radius

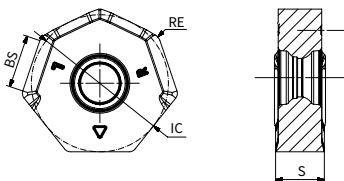



Inserts	Product code	Dimension (in)					Machining conditions						
		L	IC	S	RE	BS	● Good condition ✖ Bad condition			⚙ General condition			
							P	M	K	N			
							AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
	XNMU 070508-MM4	0.276	0.571	0.197	0.031	-	●	●		●	●	●	
	XNMU 090612-MM4	0.362	0.748	0.231	0.047	-	●	●		●	●	●	

●: Stock available

XNGX 07/09ANN-W

Negative milling inserts with long wiper

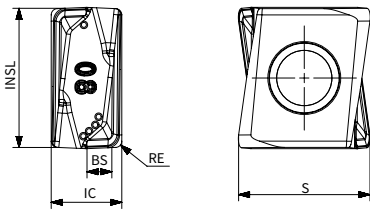



Inserts	Product code	Dimension (in)					Machining conditions						
		L	IC	S	RE	BS	● Good condition ✖ Bad condition			⚙ General condition			
							P	M	K	N			
							AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
	XNGX 0705ANN-W	0.236	0.591	0.197	0.039	0.043	●				●		
	XNGX 0906ANN-W	0.295	0.750	0.231	0.039	0.055	●				●		

●: Stock available

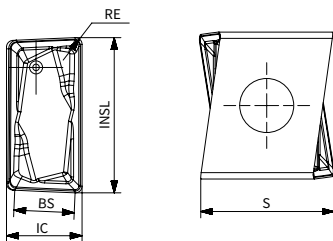
LNHU 0904..


Negative square shoulder milling inserts



Inserts	Product code	Dimension (in)					Machining conditions										
		INSL	IC	S	RE	BS	● Good condition ● General condition ✖ Bad condition										
							P	M		K		N					
AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AP351K	AW100K										
	LNHU 090404ER-FM2	0.354	0.177	0.335	0.016	0.073											●
	LNHU 090404ER-MM3	0.354	0.177	0.335	0.016	0.073		●		●							
	LNHU 090404ER-MR2	0.354	0.177	0.335	0.016	0.073	●	●		●	●	●					
	LNHU 090408ER-MR2	0.354	0.177	0.331	0.031	0.038	●	●	●	●	●	●					
	LNHU 090412ER-MR2	0.354	0.177	0.327	0.047	0.039	●			●	●						
	LNHU 090416ER-MR2	0.354	0.177	0.324	0.063	0.025	●			●	●						
	LNHU 090420ER-MR2	0.354	0.177	0.320	0.079	0.025	●			●	●						

● : Stock available



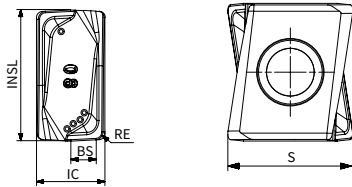
Inserts	Product code	Dimension (in)					Machining conditions										
		INSL	IC	S	RE	BS	● Good condition ● General condition ✖ Bad condition										
							P	M		K		N					
AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AP351K	AW100K										
	LNHU 0904PDER-W	0.364	0.177	0.330	0.015	0.141	●				●						●

● : Stock available

Milling cutters

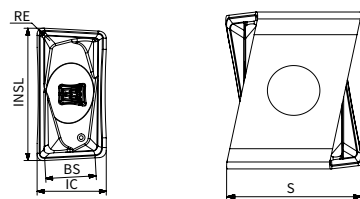
LNHU 1306..

Negative square shoulder milling inserts



Inserts	Product code	Dimension (in)					Machining conditions								
		INSL	IC	S	RE	BS	P		M		K		N		
							AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AP251K	AW100K	
	LNHU 130608ER-FM2	0.513	0.268	0.334	0.031	0.106									●
	LNHU 130608ER-MM3	0.513	0.268	0.467	0.031	0.106		●		●					
	LNHU 130608ER-MR2	0.513	0.268	0.467	0.031	0.106	●	●	●	●	●	●			
	LNHU 130612ER-MR2	0.513	0.268	0.462	0.047	0.051	●	●	●	●	●	●			
	LNHU 130616ER-MR2	0.513	0.268	0.457	0.063	0.075	●	●	●	●		●			
	LNHU 130620ER-MR2	0.513	0.268	0.454	0.079	0.059		●	●	●	●				
	LNHU 130624ER-MR2	0.513	0.268	0.449	0.094	0.039		●	●	●	●				
	LNHU 130631ER-MR2	0.513	0.268	0.442	0.122	0.016		●	●	●	●				

●: Stock available

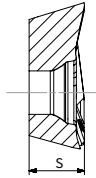
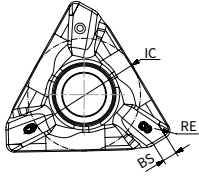



Inserts	Product code	Dimension (in)					Machining conditions								
		INSL	IC	S	RE	BS	P		M		K		N		
							AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AP351K	AW100K	
	LNHU 1306PDR-W	0.527	0.268	0.458	0.031	0.205	●						●		

●: Stock available

TDMT 1505..

Positive square shoulder triangle milling inserts



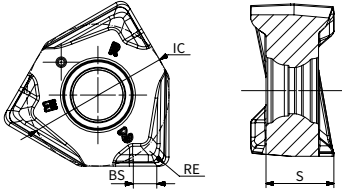
Inserts	Product code	Machining conditions				Machining conditions						
		Dimension (in)				● Good condition ● General condition ✖ Bad condition						
		IC	S	RE	BS	P	M		K		N	
				AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AW100K		
	TDMT 150508R-MM4	0.449	0.220	0.031	0.059	●		●	●	●	●	
	TDMT 150512R-MM4	0.449	0.220	0.047	0.039	●		●	●	●	●	
	TDMT 150516R-MM4	0.449	0.220	0.063	0.037	●		●	●	●	●	
	TDMT 150520R-MM4	0.449	0.220	0.079	0.028	●			●		●	
	TDMT 150524R-MM4	0.449	0.220	0.094	0.023	●			●		●	
	TDMT 150531R-MM4	0.449	0.219	0.122	0.016	●			●		●	
	TDMT 150540R-MM4	0.449	0.219	0.157	0.016	●			●		●	
	TDMT 150508R-MM3	0.449	0.219	0.031	0.059	●			●		●	
	TDHT 150508R-MM4	0.449	0.220	0.031	0.059	●					●	


●: Stock available

Milling cutters

WNGU 0806..

Negative square shoulder milling inserts

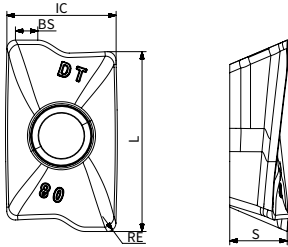


Inserts	Product code	Dimension (in)				Machining conditions				
		IC	S	RE	BS	● Good condition ⚙ General condition ✖ Bad condition				
						P	M		K	
					AP251U	AP401U	AP403M	AC301K	AP251K	
	WNMU 080608R-MR2	0.492	0.260	0.031	0.091	●	●	●	●	●
	WNMU 080608R-MM4	0.492	0.259	0.031	0.091	●	●	●	●	●
	WNMU 080608R-MM3	0.492	0.259	0.031	0.091	●	●	●	●	●
	WNMU 080612R-MR2	0.492	0.255	0.047	0.047	●	●		●	●
	WNMU 080612R-MM4	0.492	0.255	0.047	0.046	●	●	●		●
	WNMU 080616R-MR2	0.492	0.256	0.063	0.032	●		●		
	WNMU 080616R-MM4	0.492	0.256	0.063	0.031	●		●		

●: Stock available

APKT 1705..-DT..

Positive square shoulder milling inserts



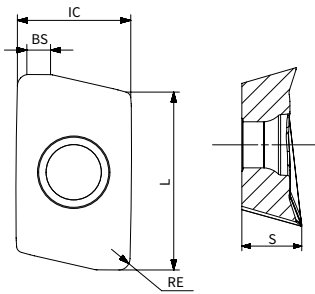
Inserts	Product code	Dimension (in)					Machining conditions										
		L	IC	S	RE	BS	● Good condition ● General condition ✖ Bad condition										
							P		M		K		N		S		
		AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AW100K	AP403S								
	APKT 1705PER-DT	0.685	0.424	0.222	0.031	0.085	●	●		●		●	●				
	APKT 170516R-DT	0.685	0.423	0.222	0.063	0.068	●					●					
	APKT 170524R-DT	0.685	0.424	0.222	0.094	0.037	●		●	●		●					
	APKT 170530R-DT	0.685	0.424	0.222	0.118	0.058	●		●	●		●					
	APKT 170540R-DT	0.685	0.424	0.222	0.157	-	●		●	●							


● : Stock available

Milling cutters

AOMT 1204..-MM4..

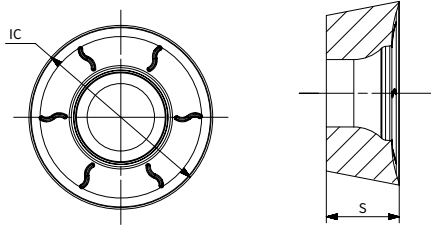
Positive square shoulder milling inserts





Inserts	Product code	Dimension (in)					Machining conditions					
		L	IC	S	RE	BS	● Good condition ● General condition ✖ Bad condition					
							P		M		K	S
							AP251U	AP351U	AP351M	AP403M	AP251K	AP403S
	AOMT 120408ER-MM4	0.504	0.321	0.200	0.031	0.061	●		●	●	●	●
	AOMT 120412ER-MM4	0.504	0.321	0.200	0.047	0.046			●	●		●
	AOMT 120416ER-MM4	0.504	0.321	0.200	0.063	0.047			●	●		●
	AOMT 120420ER-MM4	0.504	0.321	0.200	0.079	0.039	●		●	●		●
	AOMT 120424ER-MM4	0.504	0.321	0.200	0.094	0.035	●		●	●		●
	AOMT 120431ER-MM4	0.504	0.321	0.200	0.122	0.024			●	●		●
	AOMT 120440ER-MM4	0.504	0.321	0.200	0.157	0.031			●	●		●

●: Stock available

RO..T
Profile milling inserts



Inserts	Product code	Machining conditions		● Good condition ● General condition ✖ Bad condition							
				●	●	●	✖	●	●	✖	
		Dimension (in)		P			M	K		S	
		IC	S	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AP403S	
	ROHT 10T3M8E-MM3	0.394	0.156				●			●	
	ROHT 1204M4E-MM3	0.472	0.187				●			●	
	ROHT 1204M6E-MM3	0.472	0.187				●			●	
	ROMT 10T3M4E-MR6	0.394	0.156				●			●	
	ROMT 1204M6E-MR6	0.472	0.187				●			●	

●: Stock available

Milling cutters

Cutting Parameter Recommendation Table

Materials																		
ISO	Material classification	Brinell hardness (HB)	Tensile strength Rm (lbs/in ²)	AP251U			AC301P			AP351U			AP351M					
				PVD	CVD	PVD	PVD	P15-P35	P25-40	P30-P45	P20-P40	M15-M35	—	M25-M35	M20-M40	—	—	—
				1/10	1/5	1/1	1/10	1/5	1/1	1/10	1/5	1/1	1/10	1/5	1/1			
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	62000	1050	920	790	1250	980	850	920	790	660				
		0.25 < C ≤ 0.55%	Annealed	190	92700	950	790	660	1150	820	720	820	690	560				
		0.25 < C ≤ 0.55%	Heat-treated	210	103000	850	690	560	1020	720	620	750	590	460				
		C > 0.55%	Annealed	190	92700	950	790	660	1150	820	720	820	690	560				
		C > 0.55%	Heat-treated	300	147000	690	560	430	820	560	490	520	430	330				
	Low-alloyed steel	Free cutting steel (short-chip)	Annealed	220	108000	820	660	520	980	690	590	720	560	430				
		Annealed	175	85700	950	820	660	1120	980	820	890	750	590					
		Heat-treated	285	146900	820	690	520	950	820	660	750	620	460					
		Heat-treated	380	186000	750	620	460	820	690	520	690	560	390					
	High-alloyed steel and high-alloyed tool steel	Heat-treated	430	214200	620	490	360	690	560	430	560	430	300					
Annealed		200	97900	720	620	520	790	690	590	660	560	460						
Hardened and tempered		300	147000	560	460	360	620	520	430	490	430	300						
Stainless steel	Hardened and tempered	400	197000	490	390	300	520	430	330	430	330	230						
	Ferritic/martensitic, annealed	200	97900	620	520	430	660	560	460	520	460	360	590	490	390			
	Martensitic, heat-treated	330	162000	520	390	300	560	460	360	460	360	260	490	390	300			
M	Stainless steel	Austenitic, quench hardened	200	97900	590	490	390				560	460	360	560	490	390		
		Austenitic, precipitation hardened (PH)	300	147000	520	430	330				490	390	300	490	430	330		
		Austenitic/ferritic, duplex	230	113000	560	460	360				520	430	330	520	460	360		
K	Malleable cast iron	Ferritic	200	58000														
		Pearlitic	260	101000														
	Grey cast iron	Low tensile strength	180	29000														
		High tensile strength/austenitic	245	50800														
	Nodular cast iron	Ferritic	155	58000														
Pearlitic		265	101000															
	GGV(CGI)	230	58000															
N	Wrought aluminium alloys	Non-aging	30	-														
		Aged	100	49300														
	Cast aluminium alloys	≤ 12% Si, non-aging	75	37700														
		≤ 12% Si, aged	90	45000														
		> 12% Si, non-aging	130	65300														
	Magnesium alloys		70	36300														
		Copper and copper alloys	Unalloyed, electrolytic copper	100	49300													
Brass, bronze, red brass			90	45000														
Cu alloys, short-chipping			110	55100														
	High-tensile, Ampco alloy	300	146500															
S	Heat-resistant alloys	Fe-based	Annealed	200	98600							300	260	230	330	300	260	
			Hardened	280	136000								250	200	160	260	230	200
		Ni or Co based	Annealed	250	122000								260	180	150	230	200	160
			Hardened	350	171000								200	160	110	200	160	130
		Cast	320	156600								200	180	130	210	180	150	
	Titanium alloys	Pure titanium	200	98600								360	300	260	390	330	300	
		α and β alloys, hardened	375	182700								160	130	100	180	150	110	
		β alloys	410	203000								160	130	100	180	150	110	
Tungsten alloys		300	146500								210	200	160	230	210	180		
Molybdenum alloys		300	146500								210	200	160	230	210	180		
H	Hardened steel	Hardened and tempered	50HRC															
		Hardened and tempered	55HRC															
		Hardened and tempered	60HRC															
	Chilled cast iron	Hardened and tempered	50HRC															

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

Milling grade application range																																														
AP403M		AP401U		AP403S		AC301K		AP251K		AP151H		AW100K																																		
PVD		PVD		PVD		CVD		PVD		PVD		Uncoated																																		
P30-P45		P20-P40		-		-		-		-		-																																		
M30-M45		M20-M40		M30-M45		-		-		-		-																																		
-		-		-		K10-K35		K15-K40		K15-K40		-																																		
S30-S45		-		S30-S45		-		-		-		-																																		
-		-		-		-		-		-		N05-N15																																		
-		-		-		H15-H25		-		H15-H25		-																																		
Feed(mm/z)-according to the value of ae/Dc																																														
1/10		1/5		1/1		1/10		1/5		1/1		1/10		1/5		1/1		1/10		1/5		1/1																								
Cutting speed (ft/min)																																														
Blue																						560	460	360	520	460	360																			
																						460	360	260	460	360	260																			
Yellow																						520	460	360	520	460	360	620	520	460																
																						460	390	300	490	430	300	560	460	390																
																						490	430	330	490	430	330	520	430	360																
Red																															790	690	590	720	620	520	590	490	390							
																															720	620	520	660	560	460	520	430	330							
																															920	820	720	850	750	660	690	590	490							
																															790	690	590	690	620	520	590	490	390							
																															850	750	660	790	690	590	620	520	430							
																															620	520	430	560	460	360	490	390	300							
																															660	560	460	590	490	390	520	430	330							
Light Green																																								7220	7220	6560				
																																									5910	5910	5250			
																																									1970	1970	1640			
																																									1640	1640	1310			
																																									920	920	660			
																																									1310	1310	980			
																																									980	980	820			
Brown																																														
																						310	280	250				360	330	300																
																						260	210	180				300	260	230																
																						280	200	160				260	230	200																
																						210	180	110				250	210	160																
																						210	200	150				250	210	180																
																						390	310	280				390	330	300																
																						160	130	100				200	160	130																
																						160	130	100				200	160	130																
230	200	160				230	210	200																																						
230	200	160				230	210	200																																						
Light Blue																															230	200	160						210	180	150					
																																								200	160	130				
																																								200	160	130				

Milling cutters