

TURNLINE PVD coated grade for superalloy turning

AH905

Extended version

PREMIUMTEC
TUNGALOY

Maximize productivity in superalloys machining!



Extended positive insert range to improve Superalloy machining capabilities!

Features

AH905 - The ideal grade for superalloy turning

Long tool life

Highest level of reliability!

Specified grade for Superalloy machining

New (Al,Ti)N layer has very high oxidation resistance. This provides excellent wear resistance when cutting superalloys.

Special Surface Technology

PREMIUMTEC
TUNGALOY

Smooth insert surface prevents chip adhesion and improves chip flow.

New (Al,Ti)N coating

Fine grain cemented carbide
Provides high impact resistance

Appli- cation	Grade	Substrate			Coating layer		Features
	Application code	Specific gravity	Hardness (HRA)	T.R.S (GPa)	Main Composition	Thickness (μm)	
 Superalloys	AH905	15.0	93.0	2.9	(Al,Ti)N	1.5	For turning of superalloy New coating improves the adhesion and wear resistance.
	S01 - S15						

HMM chipbreaker for superalloy turning

Uniquely designed chipbreaker with 3-dimensional shape

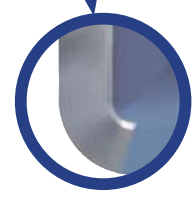


Reduced chip adhesion and improved chip control

Reduced contact area

HMM

Competitor B

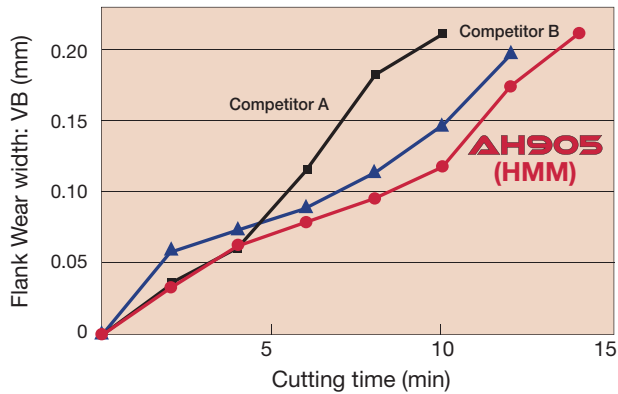


Dot

: Contact area with chip

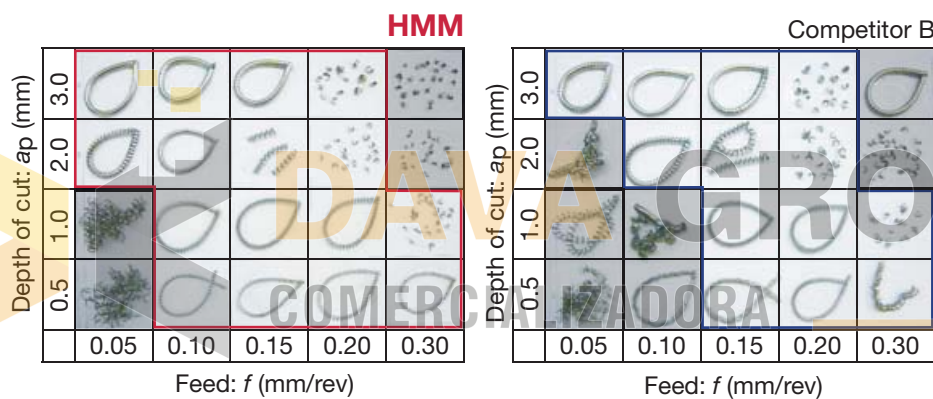
Cutting performance

New grade provides remarkable tool life in superalloy cutting.



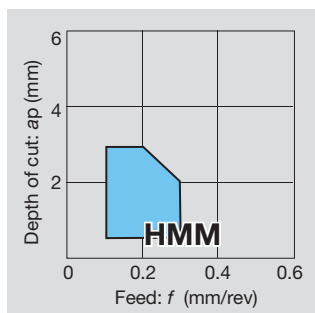
Work material : Inconel 718-T6 (40 ~ 44 HRC)
 Insert : CNMG120408-**
 Toolholder : ACLNL2525M12-A
 Cutting speed : $V_c = 56$ m/min
 Depth of cut : $a_p = 0.7$ mm
 Feed : $f = 0.2$ mm/rev

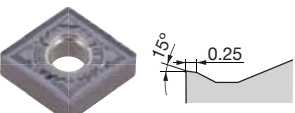
HMM chipbreaker offers highly stable chip control.



Work material : Inconel 718-T6 (40 ~ 44 HRC)
 Insert : CNMG120408-**
 Toolholder : ACLNL2525M12-A
 Cutting Speed : $V_c = 56$ m/min

Chipbreaker (Negative type insert)



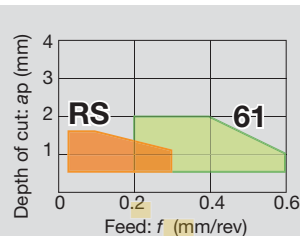
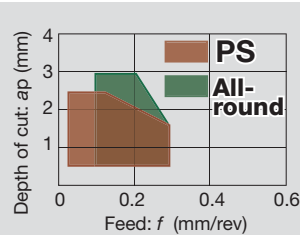
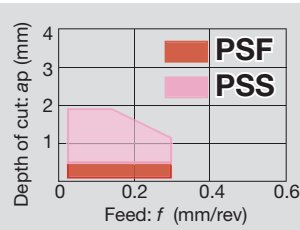
Application	Chip-breaker	Shape	Features
Medium cutting	HMM		Sharp cutting edge and unique dots on rake face significantly reduce the cutting forces and the contact area with the chips.

Standard cutting conditions

Work material	Application	Chipbreaker	Grade	Cutting speed V_c (m/min)	Depth of cut a_p (mm)	Feed f (mm/rev)
Ni-base alloys (Inconel 718 etc)	Medium cutting	HMM	AH905	50 (20-100)	1.5 (0.5 - 3.0)	0.2 (0.1 - 0.3)

Chipbreakers (Positive type insert)

NEW



Application	Chip-breaker	Shape		Features
Finishing	PSF			Highly recommended chipbreaker for finishing with low cutting forces. This offers excellent chip control at small depths of cut.
Finishing to light cutting	PSS			Uniquely designed chipbreaker reduces the cutting forces and delivers exceptional chip control in a wide range of cutting conditions.
Finishing to medium cutting	PS			Versatile chipbreaker for medium cutting. Sharp cutting edge and special chipbreaker provides outstanding chip control.
Medium cutting	All-round			Suitable for a wide range of applications from continuous to interrupted cutting. This chipbreaker combines sharpness with high fracture resistance.
Finishing to light cutting	RS			Chipbreaker for round inserts. RS chipbreaker allows excellent chip control with large rake angle to curl chips smoothly.
Medium cutting	61			Chipbreaker for round insert. Suitable for medium cutting with small depth of cut and high feed.

Standard cutting conditions

Work material	Application	Chipbreaker	Grade	Cutting speed Vc (m/min)	Depth of cut ap (mm)	Feed f (mm/rev)
Ni-base alloys (Inconel 718 etc)	Finishing	PSF	AH905	50 (20-100)	0.3 (0.05 - 0.5)	0.16 (0.02 - 0.3)
	Finishing to light cutting	PSS			1.0 (0.5 - 2.0)	0.16 (0.02 - 0.3)
	Finishing to medium cutting	PS			1.0 (0.5 - 2.5)	0.16 (0.02 - 0.3)
	Medium cutting	All-round			1.5 (0.5 - 3.0)	0.19 (0.08 - 0.3)
	Finishing to light cutting	RS			1.0 (0.5 - 1.5)	0.15 (0.03 - 0.3)
	Medium cutting	61			1.0 (0.5 - 2.0)	0.4 (0.2 - 0.6)

Inserts

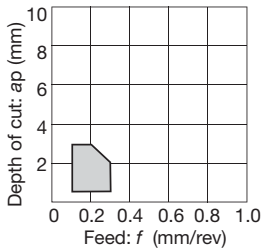
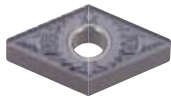
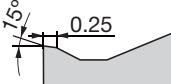
Rhombic, 80° Negative type

Application	Chipbreaker	f - ap	Cat. No.	Stocked grades	Dimensions (mm)			
	Appearance (Cross section)			Coated	I.C. dia ød	Thick- ness s	Hole dia ød1	Corner radius rε
				AH905				
Medium cutting	HMM 		CNMG120404-HMM	●	12.7	4.76	5.16	0.4
			* CNMG120408-HMM	●				0.8
			CNMG120412-HMM	●				1.2
			CNMG160608-HMM	●	15.875	6.35	6.35	0.8
			CNMG160612-HMM	●				1.2
			CNMG160616-HMM	●				1.6

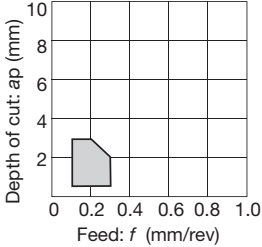
*Note: Chipbreaker cross sections are of insert marked *

● : Stocked items

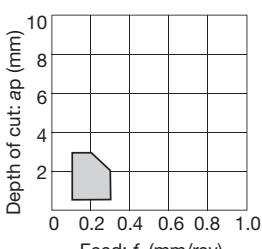
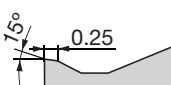
Rhombic, 55° Negative type

Appli- cation	Chipbreaker	$f - ap$	Cat. No.	Stocked grades	Dimensions (mm)			
	Appearance (Cross section)			Coated	I.C.dia	Thick- ness	Hole dia	Corner radius
				AH905	ød	s	ød1	$r\epsilon$
Medium cutting	HMM		DNMG150404-HMM	●	12.7	4.76	5.16	0.4
			* DNMG150408-HMM	●				0.8
			DNMG150412-HMM	●				1.2

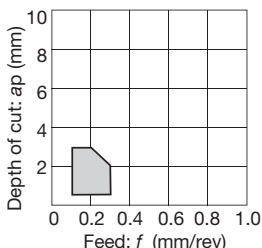
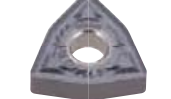
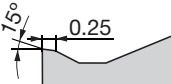
Square, 90° Negative type

Appli- cation	Chipbreaker	$f - ap$	Cat. No.	Stocked grades	Dimensions (mm)			
	Appearance (Cross section)			Coated	I.C.dia	Thick- ness	Hole dia	Corner radius
				AH905	ød	s	ød1	$r\epsilon$
Medium cutting	HMM		* SNMG120408-HMM	●	12.7	4.76	5.16	0.8
			SNMG120412-HMM	●				1.2

Triangular, 60° Negative type

Appli- cation	Chipbreaker	$f - ap$	Cat. No.	Stocked grades	Dimensions (mm)			
	Appearance (Cross section)			Coated	I.C.dia	Thick- ness	Hole dia	Corner radius
				AH905	ød	s	ød1	$r\epsilon$
Medium cutting	HMM		TNMG160404-HMM	●	9.525	4.76	3.81	0.4
			* TNMG160408-HMM	●				0.8
			TNMG160412-HMM	●				1.2

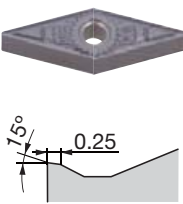
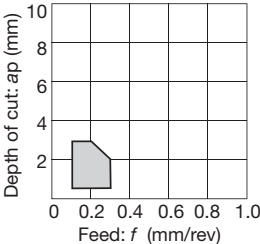
Rhombic, 80° Negative type

Appli- cation	Chipbreaker	$f - ap$	Cat. No.	Stocked grades	Dimensions (mm)			
	Appearance (Cross section)			Coated	I.C.dia	Thick- ness	Hole dia	Corner radius
				AH905	ød	s	ød1	$r\epsilon$
Medium cutting	HMM		WNMG080404-HMM	●	12.7	4.76	5.16	0.4
			* WNMG080408-HMM	●				0.8
			WNMG080412-HMM	●				1.2

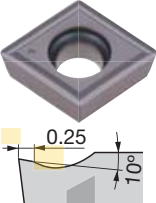
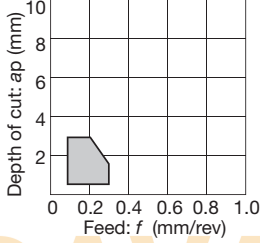
*Note: Chipbreaker cross sections are of insert marked *

● : Stocked items

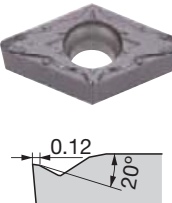
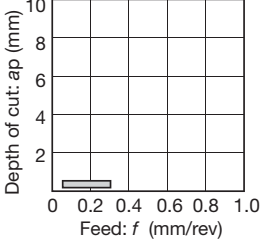
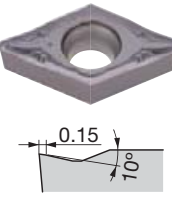
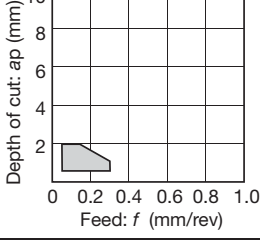
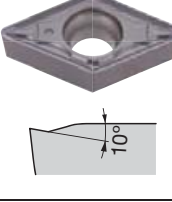
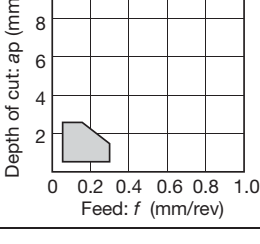
Rhombic, 35° Negative type

Application	Chipbreaker	$f - ap$	Cat. No.	Stocked grades	Dimensions (mm)			
	Appearance (Cross section)			Coated	I.C.dia	Thick-ness	Hole dia	Corner radius
				AH905	ød	s	ød1	rε
Medium cutting	HMM 		VNMG160404-HMM	●	9.525	4.76	3.81	0.4
			*VNMG160408-HMM	●				0.8
			VNMG160412-HMM	●				1.2

Rhombic, 80° Positive type 11°

Application	Chipbreaker	$f - ap$	Cat. No.	Stocked grades	Dimensions (mm)			
	Appearance (Cross section)			Coated	I.C.dia	Thick-ness	Hole dia	Corner radius
				AH905	ød	s	ød1	rε
Medium cutting	All-round 		*CPMT120408	●	12.7	4.76	5.5	0.8

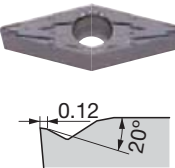
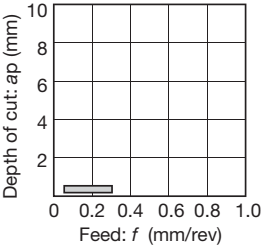
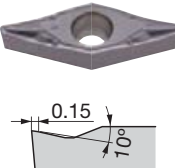
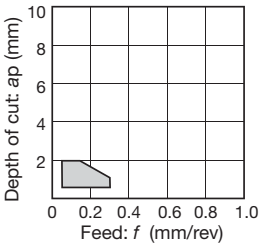
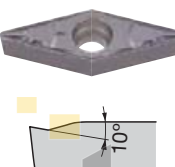
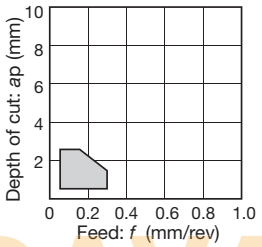
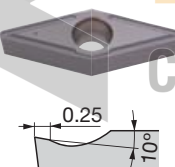
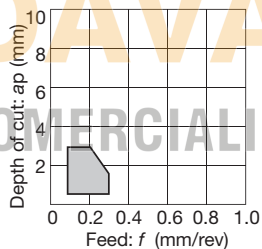
Rhombic, 55° Positive type 7°

Application	Chipbreaker	$f - ap$	Cat. No.	Stocked grades	Dimensions (mm)			
	Appearance (Cross section)			Coated	I.C.dia	Thick-ness	Hole dia	Corner radius
				AH905	ød	s	ød1	rε
Finishing	PSF 		DCMT11T304-PSF	●	9.525	3.97	4.4	0.4
			*DCMT11T308-PSF	●				0.8
Finishing to light cutting	PSS 		DCMT11T304-PSS	●	9.525	3.97	4.4	0.4
			*DCMT11T308-PSS	●				0.8
			DCMT11T312-PSS	●				1.2
Finishing to medium cutting	PS 		DCMT11T304-PS	●	9.525	3.97	4.4	0.4
			*DCMT11T308-PS	●				0.8
			DCMT11T312-PS	●				1.2

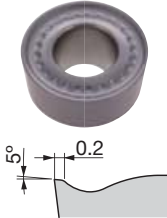
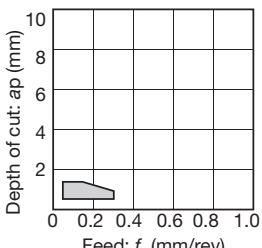
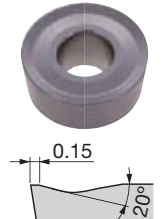
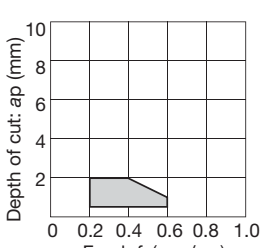
*Note: Chipbreaker cross sections are of insert marked *

● : Stocked items

Rhombic, 35° Positive type 7°

Appli- cation	Chipbreaker	$f - ap$	Cat. No.	Stocked grades	Dimensions (mm)			
	Appearance (Cross section)			Coated	I.C.dia	Thick- ness	Hole dia	Corner radius
				AH905	ød	s	ød1	$r\epsilon$
NEW	PSF	 Depth of cut: ap (mm)  Feed: f (mm/rev)	VCMT160404-PSF	●	9.525	4.76	4.4	0.4
			*VCMT160408-PSF	●				0.8
NEW	PSS	 Depth of cut: ap (mm)  Feed: f (mm/rev)	VCMT160404-PSS	●	9.525	4.76	4.4	0.4
			*VCMT160408-PSS	●				0.8
NEW	PS	 Depth of cut: ap (mm)  Feed: f (mm/rev)	VCMT160404-PS	●	9.525	4.76	4.4	0.4
			*VCMT160408-PS	●				0.8
NEW	All-round	 Depth of cut: ap (mm)  Feed: f (mm/rev)	VCMT160404	●	9.525	4.76	4.4	0.4
			*VCMT160408	●				0.8
			VCMT160412	●				1.2

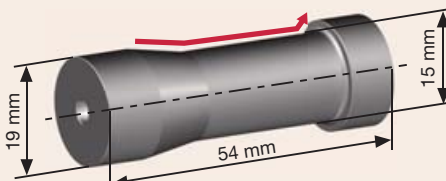
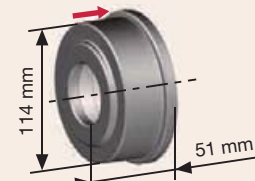
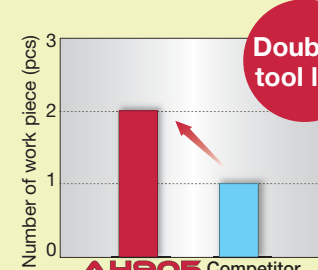
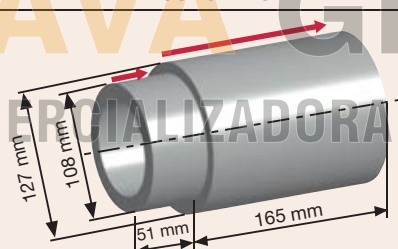
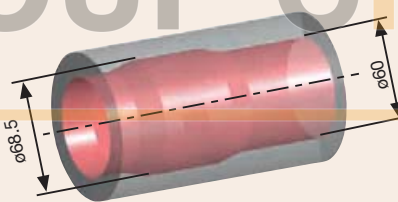
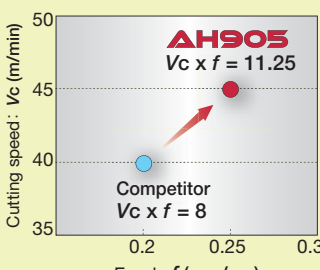
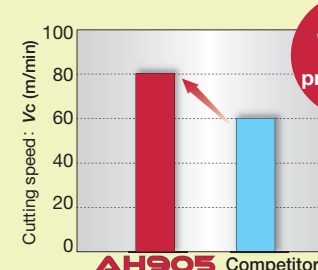
Round with hole, Positive type 7°

Appli- cation	Chipbreaker	$f - ap$	Cat. No.	Stocked grades	Dimensions (mm)			
	Appearance (Cross section)			Coated	I.C.dia	Thick- ness	Hole dia	Corner radius
				AH905	ød	s	ød1	$r\epsilon$
NEW	RS	 Depth of cut: ap (mm)  Feed: f (mm/rev)	RCMT10T3M0-RS	●	10	3.97	4.4	-
			*RCMT1204M0-RS	●	12	4.76	4.4	-
NEW	61	 Depth of cut: ap (mm)  Feed: f (mm/rev)	RCMM1003M0-61	●	10	3.18	3.6	-
			*RCMM1204M0-61	●	12	4.76	4.2	-

*Note: Chipbreaker cross sections are of insert marked *

● : Stocked items

Practical examples

Workpiece type		Nozzle	Engine component
Insert		DNMG150408-HMM AH905	CNMG120408-HMM AH905
Work material		Hastelloy X	Inconel 718
Cutting conditions			
		Cutting speed: V_c (m/min)	100
		Feed: f (mm/rev)	0.13
		Depth of cut: a_p (mm)	2.0
		Coolant	Wet
Results		 Doubled tool life! Machining is very stable and the longer tool life can be provided due to high wear resistance.	 Doubled tool life! Even with 50% higher feed, there is no chipping on the cutting edge credit to the excellent toughness.
Workpiece type		Belt	Aerospace component
Insert		CNMG120408-HMM AH905	DCMT11T308-PSF AH905
Work material		Inconel 718	High strength steel alloy
Cutting conditions			
		Cutting speed: V_c (m/min)	45
		Feed: f (mm/rev)	0.25
		Depth of cut: a_p (mm)	2.5
		Coolant	Wet
Results		 140% productivity! Both cutting speed and feed can be increased to drastically improve productivity.	 30% higher productivity! Even at higher cutting speeds, the edge wear is minimal with remarkable wear resistance.



Tungaloy Corporation

www.tungaloy.co.jp



ISO 9001 certified
QC00J0056
Tungaloy Corporation

18/10/1996

ISO 14001 certified
EC97J1123
Tungaloy Group
Japan site and Asian
production site

26/11/1997

Distributed by:



Dyalco CNC
Herramientas de corte



06887456

Dec. 2011 (TJ)