MP/MT9000

ISO TURNING INSERTS
FOR DIFFICULT TO CUT MATERIALS

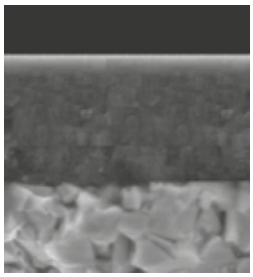
DIAEDGE

MITSUBISHI MATERIALS

NEW

MP9005/MP9015/MP9025

PVD COATED GRADE

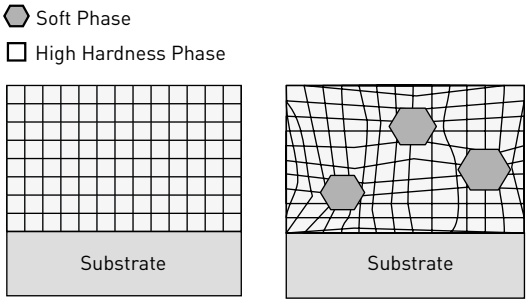


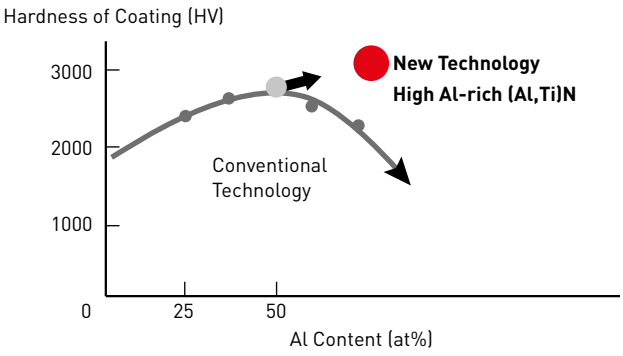
- High Al-rich (Al,Ti)N Single Layer Coating Technology
- Special Cemented Carbide Substrate

MP9005/MP9015/MP9025

HIGH AL AND CONVENTIONAL COATING COMPARISON

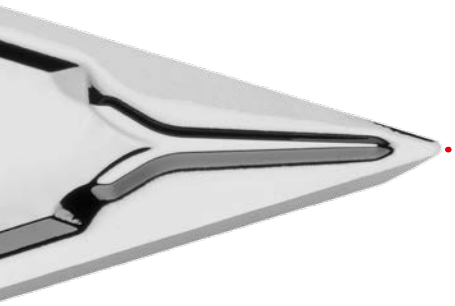
The new technology high Al-rich (Al,Ti)N single layer coating provides stabilisation of the high hardness phase and succeeds in dramatically improving wear, crater and welding resistance.

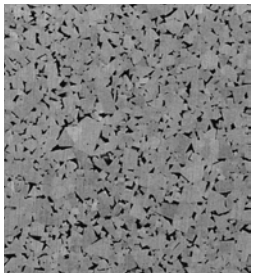




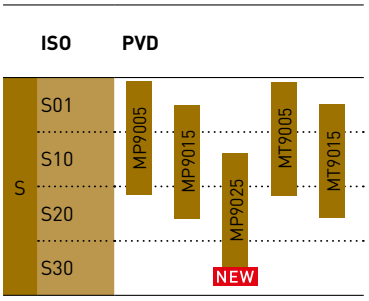
MT9005/MT9015

CARBIDE GRADE (NON COATED)





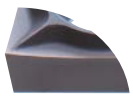
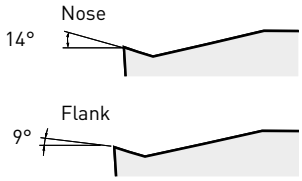
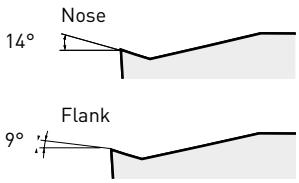
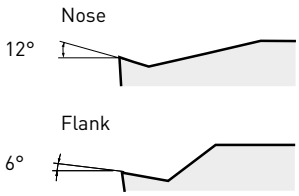
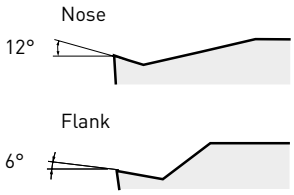
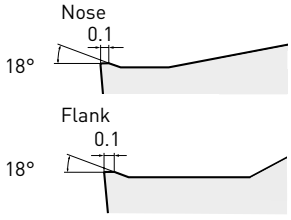
MT9015



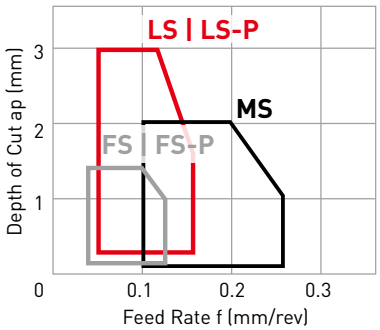
ISO		Grade	Concept	Application
S	S05	**MP9005 / MT9005**	High quality grade focusing on wear resistance	Heat Resistant Alloy Finish-Medium cutting
	S15	**MP9015**	First recommendation for general applications	Heat Resistant Alloy Medium-Rough cutting
		MP9025 NEW	Prevents severe damage for increased stability	Heat Resistant Alloy Interrupted - Light-Rough Cutting
		MT9015	New cemented carbide with sharp cutting edge, excellent wear and fracture resistance	Titanium Alloy General Cutting

CHIP BREAKER SYSTEM

POSITIVE INSERTS

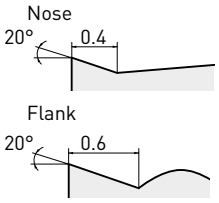
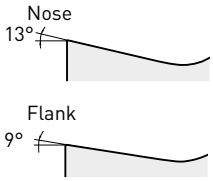
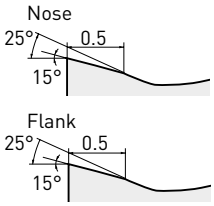
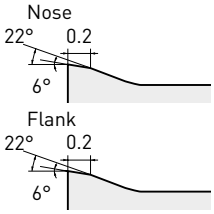
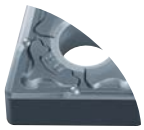
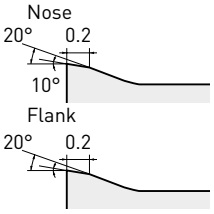
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finishing	G	**FS** 	**FIRST RECOMMENDATION FOR FINISHING DIFFICULT-TO-CUT MATERIALS** Ideal for heat-resistant, titanium and cobalt chromium alloys. Sharp cutting edges provide excellent surface finishes and geometric tolerance. Highly efficient chip discharge is possible due to curved cutting edges.	
		FS-P 	**FIRST RECOMMENDATION FOR FINISHING OF TITANIUM ALLOYS** Ideal for titanium and copper alloys. Sharp cutting edges provide excellent surface finishes and geometric tolerance. Highly efficient chip discharge is possible due to curved cutting edges. Polished, mirror finish of insert surfaces drastically improves welding resistance and extends tool life.	
Light cutting	M	**LS** 	**FIRST RECOMMENDATION FOR LIGHT CUTTING OF DIFFICULT-TO-CUT MATERIALS** Ideal for heat-resistant, titanium and cobalt chromium alloys. Excellent chip control at low to medium depths of cut.	
	G	**LS-P** 	**FIRST RECOMMENDATION FOR LIGHT CUTTING OF TITANIUM ALLOYS** Ideal for titanium and copper alloys. Excellent chip control at low to medium depths of cut. Polished, mirror finish of insert surfaces drastically improves welding resistance and extends tool life.	
Medium cutting	M	**MS** 	**FIRST RECOMMENDATION FOR MEDIUM CUTTING OF DIFFICULT-TO-CUT MATERIALS** A wide chip pocket copes with variations in cutting resistance and reduces vibration and chip jamming even at large varying depths of cut.	

CHIP CONTROL RANGE

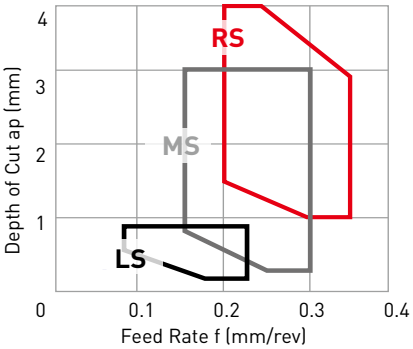


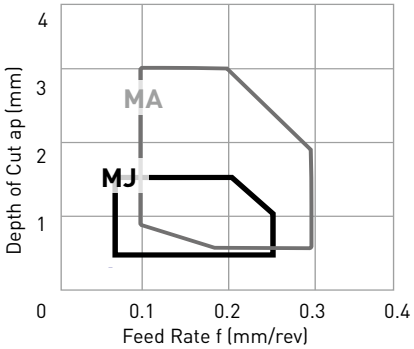
CHIP BREAKER SYSTEM

NEGATIVE INSERTS

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Light cutting	M	**LS** 	**FIRST RECOMMENDATION FOR LIGHT CUTTING OF DIFFICULT-TO-CUT MATERIALS** Enhanced chip disposal for depths of cut smaller than the corner radius.	
		MJ 	**FIRST RECOMMENDATION FOR LIGHT CUTTING OF DIFFICULT-TO-CUT MATERIALS** Double sided chipbreaker, single sided chipbreaker (D type, V type). The sharp edge produces a good surface finish. Ideal for heat-resistant and titanium alloys. The curved edge allows smooth chip discharge.	
Medium cutting	M	**MS** 	**FIRST RECOMMENDATION FOR MEDIUM CUTTING OF DIFFICULT-TO-CUT MATERIALS** Double sided chipbreaker. The sharp edge provides superior performance.	
		MA 	**MULTI-ASSIST CHIPBREAKER FOR MEDIUM CUTTING OF DIFFICULT-TO-CUT MATERIALS** Double sided chipbreaker. Positive land provides a sharp cutting action.	
Roughing	M	**RS** 	**FIRST RECOMMENDATION FOR ROUGH CUTTING OF DIFFICULT-TO-CUT MATERIALS** During low speed cutting the positive land controls chip welding and abrasion at the depth of cut line.	

CHIP CONTROL RANGE





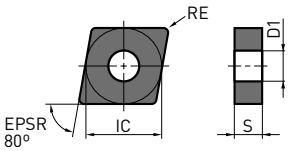
NEGATIVE INSERTS

(WITH HOLE)

S

M Class
CNMG

CNMG



CHIP BREAKER IDENTIFICATION			
APPLICATION	L	M	R
CHIP BREAKER	LS	MA, MJ, MS	RS

Order Number	Cutting Range	MP9005	MP9015	NEW MP9025	MT9015	IC	S	RE	D1
CNMG090304-LS	L	●	●			9.525	3.18	0.4	3.81
CNMG090308-LS	L	●	●			9.525	3.18	0.8	3.81
CNMG120402-LS	L	●	●		●	12.7	4.76	0.2	5.16
CNMG120404-LS	L	●	●	●	●	12.7	4.76	0.4	5.16
CNMG120408-LS	L	●	●	●	●	12.7	4.76	0.8	5.16
CNMG090304-MS	M	●	●			9.525	3.18	0.4	3.81
CNMG090308-MS	M	●	●			9.525	3.18	0.8	3.81
CNMG120404-MS	M	●	●	●	●	12.7	4.76	0.4	5.16
CNMG120408-MS	M	●	●	●	●	12.7	4.76	0.8	5.16
CNMG120412-MS	M	●	●	●	●	12.7	4.76	1.2	5.16
CNMG160612-MS	M	★	★		★	15.875	6.35	1.2	6.35
CNMG160616-MS	M	★	★		★	15.875	6.35	1.6	6.35
CNMG120404-MA	M		●	●		12.7	4.76	0.4	5.16
CNMG120408-MA	M		●	●		12.7	4.76	0.8	5.16
CNMG120412-MA	M		●	●		12.7	4.76	1.2	5.16
CNMG120416-MA	M		●			12.7	4.76	1.6	5.16
CNMG120404-MJ	M	●	●			12.7	4.76	0.4	5.16
CNMG120408-MJ	M	●	●			12.7	4.76	0.8	5.16
CNMG120412-MJ	M	●	●			12.7	4.76	1.2	5.16
CNMG120416-MJ	M	●	●			12.7	4.76	1.6	5.16
CNMG120408-RS	R		●		●	12.7	4.76	0.8	5.16
CNMG120412-RS	R		●		●	12.7	4.76	1.2	5.16
CNMG120416-RS	R		●		★	12.7	4.76	1.6	5.16
CNMG160612-RS	R		●		★	15.875	6.35	1.2	6.35
CNMG160616-RS	R		●		★	15.875	6.35	1.6	6.35
CNMG190612-RS	R		●		★	19.05	6.35	1.2	7.93
CNMG190616-RS	R		●		★	19.05	6.35	1.6	7.93

Vc 14

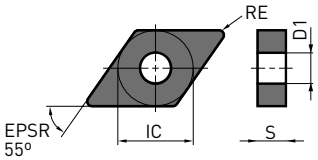
NEGATIVE INSERTS

(WITH HOLE)

S

M Class
DNMG

DNMG



CHIP BREAKER IDENTIFICATION			
APPLICATION	L	M	R
CHIP BREAKER	LS	MA, MJ, MS	RS

Order Number	Cutting Range	MP9005	MP9015	NEW MP9025	MT9015	IC	S	RE	D1
DNMG150402-LS	L	●	●	●	●	12.7	4.76	0.2	5.16
DNMG150404-LS	L	●	●	●	●	12.7	4.76	0.4	5.16
DNMG150408-LS	L	●	●	●	●	12.7	4.76	0.8	5.16
DNMG150604-LS	L	●	●	●	●	12.7	6.35	0.4	5.16
DNMG150608-LS	L	●	●	●	●	12.7	6.35	0.8	5.16
DNMG150404-MS	M	●	●	●	●	12.7	4.76	0.4	5.16
DNMG150408-MS	M	●	●	●	●	12.7	4.76	0.8	5.16
DNMG150412-MS	M	●	●	●	★	12.7	4.76	1.2	5.16
DNMG150604-MS	M	●	●	●	●	12.7	6.35	0.4	5.16
DNMG150608-MS	M	●	●	●	●	12.7	6.35	0.8	5.16
DNMG150612-MS	M	●	●	●	★	12.7	6.35	1.2	5.16
DNMG150404-MA	M		●			12.7	4.76	0.4	5.16
DNMG150408-MA	M		●	●		12.7	4.76	0.8	5.16
DNMG150412-MA	M		●	●		12.7	4.76	1.2	5.16
DNMG150604-MA	M		●			12.7	6.35	0.4	5.16
DNMG150608-MA	M		●	●		12.7	6.35	0.8	5.16
DNMG150612-MA	M		●	●		12.7	6.35	1.2	5.16
DNMG150404-MJ	M	●	●			12.7	4.76	0.4	5.16
DNMG150408-MJ	M	●	●			12.7	4.76	0.8	5.16
DNMG150412-MJ	M	●	●			12.7	4.76	1.2	5.16
DNMG150416-MJ	M	●	●			12.7	4.76	1.6	5.16
DNMG150604-MJ	M	●	●			12.7	6.35	0.4	5.16
DNMG150608-MJ	M	●	●			12.7	6.35	0.8	5.16
DNMG150612-MJ	M	●	●			12.7	6.35	1.2	5.16
DNMG150616-MJ	M	●	●			12.7	6.35	1.6	5.16
DNMG150408-RS	R		●	●	●	12.7	4.76	0.8	5.16
DNMG150412-RS	R		●	●	●	12.7	4.76	1.2	5.16
DNMG150416-RS	R		●		★	12.7	4.76	1.6	5.16
DNMG150608-RS	R		●	●	●	12.7	6.35	0.8	5.16
DNMG150612-RS	R		●	●	●	12.7	6.35	1.2	5.16
DNMG150616-RS	R		●		★	12.7	6.35	1.6	5.16

Vc 14

● : Inventory maintained. ★ : Inventory maintained in Japan.

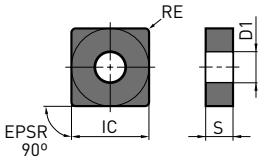
NEGATIVE INSERTS

(WITH HOLE)

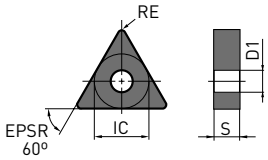
S

M Class
SNMG, TNMG

SNMG



TNMG



CHIP BREAKER IDENTIFICATION

APPLICATION	L	M	R
CHIP BREAKER	LS	MA, MJ, MS	RS

Order Number	Cutting Range	MP9005	MP9015	NEW MP9025	MT9015	IC	S	RE	D1
SNMG120404-MS	M	●	●		●	12.7	4.76	0.4	5.16
SNMG120408-MS	M	●	●	●	●	12.7	4.76	0.8	5.16
SNMG120412-MS	M	●	●	●	★	12.7	4.76	1.2	5.16
SNMG150612-MS	M	★	★		★	15.875	6.35	1.2	6.35
SNMG150616-MS	M	★	★		★	15.875	6.35	1.6	6.35
SNMG190612-MS	M	●	●			19.05	6.35	1.2	7.93
SNMG120404-MA	M		●			12.7	4.76	0.4	5.16
SNMG120408-MA	M		●			12.7	4.76	0.8	5.16
SNMG120412-MA	M		●			12.7	4.76	1.2	5.16
SNMG120416-MA	M		●			12.7	4.76	1.6	5.16
SNMG120408-RS	R		●	●	●	12.7	4.76	0.8	5.16
SNMG120412-RS	R		●	●	●	12.7	4.76	1.2	5.16
SNMG120416-RS	R		●		★	12.7	4.76	1.6	5.16
SNMG150616-RS	R		★		★	15.875	6.35	1.6	6.35
SNMG190612-RS	R		●			19.05	6.35	1.2	7.93
SNMG190616-RS	R		★		★	19.05	6.35	1.6	7.93
TNMG160402-LS	L	●	●	●	●	9.525	4.76	0.2	3.81
TNMG160404-LS	L	●	●	●	●	9.525	4.76	0.4	3.81
TNMG160408-LS	L	●	●	●	●	9.525	4.76	0.8	3.81
TNMG160404-MS	M	●	●		●	9.525	4.76	0.4	3.81
TNMG160408-MS	M	●	●	●	●	9.525	4.76	0.8	3.81
TNMG160412-MS	M	●	●	●	★	9.525	4.76	1.2	3.81
TNMG220408-MS	M	●	●		★	12.7	4.76	0.8	5.16
TNMG220412-MS	M	●	●		★	12.7	4.76	1.2	5.16
TNMG160404-MA	M		●	●		9.525	4.76	0.4	3.81
TNMG160408-MA	M		●	●		9.525	4.76	0.8	3.81
TNMG160412-MA	M		●			9.525	4.76	1.2	3.81
TNMG220408-MA	M		●			12.7	4.76	0.8	5.16
TNMG220412-MA	M		●			12.7	4.76	1.2	5.16
TNMG220416-MA	M		●			12.7	4.76	1.6	5.16
TNMG270616-MA	M		●			15.875	6.35	1.6	6.35
TNMG330924-MA	M		●			19.05	9.52	2.4	7.93
TNMG160404-MJ	M	●	●			9.525	4.76	0.4	3.81
TNMG160408-MJ	M	●	●			9.525	4.76	0.8	3.81
TNMG160412-MJ	M	●	●			9.525	4.76	1.2	3.81
TNMG160408-RS	R		●	●	●	9.525	4.76	0.8	3.81
TNMG160412-RS	R		●	●	●	9.525	4.76	1.2	3.81
TNMG220408-RS	R		●		★	12.7	4.76	0.8	5.16
TNMG220412-RS	R		●		★	12.7	4.76	1.2	5.16

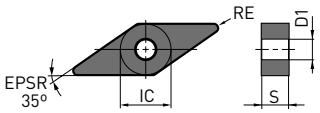
NEGATIVE INSERTS

(WITH HOLE)

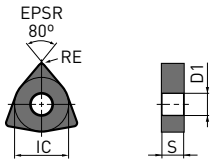
S

M Class
VNMG, WNMG

VNMG



WNMG



CHIP BREAKER IDENTIFICATION			
APPLICATION	L	M	R
CHIP BREAKER	LS	MA, MJ, MS	RS

Order Number	Cutting Range	MP9005	MP9015	NEW MP9025	MT9015	IC	S	RE	D1
VNMG160402-LS	L	●	●	●	●	9.525	4.76	0.2	3.81
VNMG160404-LS	L	●	●	●	●	9.525	4.76	0.4	3.81
VNMG160408-LS	L	●	●	●	●	9.525	4.76	0.8	3.81
VNMG160404-MS	M	●	●	●	●	9.525	4.76	0.4	3.81
VNMG160408-MS	M	●	●	●	●	9.525	4.76	0.8	3.81
VNMG160404-MJ	M	●	●			9.525	4.76	0.4	3.81
VNMG160408-MJ	M	●	●			9.525	4.76	0.8	3.81
VNMG160412-MJ	M	●	●			9.525	4.76	1.2	3.81
WNMG080402-LS	L	●	●		●	12.7	4.76	0.2	5.16
WNMG080404-LS	L	●	●	●	●	12.7	4.76	0.4	5.16
WNMG080408-LS	L	●	●	●	●	12.7	4.76	0.8	5.16
WNMG080404-MS	M	●	●	●	●	12.7	4.76	0.4	5.16
WNMG080408-MS	M	●	●	●	●	12.7	4.76	0.8	5.16
WNMG080412-MS	M	●	●	●	★	12.7	4.76	1.2	5.16
WNMG080404-MA	M		●			12.7	4.76	0.4	5.16
WNMG080408-MA	M		●			12.7	4.76	0.8	5.16
WNMG080412-MA	M		●			12.7	4.76	1.2	5.16
WNMG080416-MA	M		●			12.7	4.76	1.6	5.16
WNMG080408-MJ	M	●	●			12.7	4.76	0.8	5.16
WNMG080412-MJ	M	●	●			12.7	4.76	1.2	5.16
WNMG080416-MJ	M	●	●			12.7	4.76	1.6	5.16
WNMG080408-RS	R		●	●	●	12.7	4.76	0.8	5.16
WNMG080412-RS	R		●	●	●	12.7	4.76	1.2	5.16
WNMG080416-RS	R		●		★	12.7	4.76	1.6	5.16
WNMG100612-RS	R		●		★	15.875	6.35	1.2	6.35

Vc 14

● : Inventory maintained. ★ : Inventory maintained in Japan.

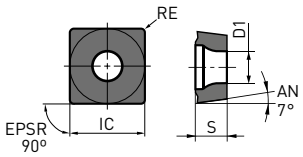
7° POSITIVE INSERTS

(WITH HOLE)

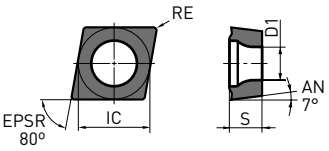
S

M Class
CCMT, DCMT, SCMT

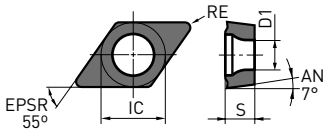
SCMT



CCMT



DCMT



CHIP BREAKER IDENTIFICATION		
APPLICATION	L	M
CHIP BREAKER	LS	MS

Order Number	Cutting Range	MP9005	MP9015	MT9005	IC	S	RE	D1
CCMT060202-LS	L	●	●	●	6.35	2.38	0.2	2.8
CCMT060204-LS	L	●	●	●	6.35	2.38	0.4	2.8
CCMT060202-MS	M	●	●	●	6.35	2.38	0.2	2.8
CCMT060204-MS	M	●	●	●	6.35	2.38	0.4	2.8
CCMT060208-MS	M	●	●	●	6.35	2.38	0.8	2.8
CCMT09T302-LS	L	●	●	●	9.525	3.97	0.2	4.4
CCMT09T304-LS	L	●	●	●	9.525	3.97	0.4	4.4
CCMT09T308-LS	L	●	●	●	9.525	3.97	0.8	4.4
CCMT09T302-MS	M	●	●		9.525	3.97	0.2	4.4
CCMT09T304-MS	M	●	●	●	9.525	3.97	0.4	4.4
CCMT09T308-MS	M	●	●	●	9.525	3.97	0.8	4.4
CCMT120404-MS	M	●	●	●	12.7	4.76	0.4	5.5
CCMT120408-MS	M	●	●	●	12.7	4.76	0.8	5.5
CCMT120412-MS	M	●	●	●	12.7	4.76	1.2	5.5
DCMT070202-LS	L	●	●	●	6.35	2.38	0.2	2.8
DCMT070204-LS	L	●	●	●	6.35	2.38	0.4	2.8
DCMT11T302-LS	L	●	●	●	9.525	3.97	0.2	4.4
DCMT11T304-LS	L	●	●	●	9.525	3.97	0.4	4.4
DCMT11T308-LS	L	●	●	●	9.525	3.97	0.8	4.4
DCMT11T312-MS	M	●	●	●	9.525	3.97	1.2	4.4
DCMT070204-MS	M	●	●	●	6.35	2.38	0.4	2.8
DCMT070208-MS	M	●	●	●	6.35	2.38	0.8	2.8
DCMT11T304-MS	M	●	●	●	9.525	3.97	0.4	4.4
DCMT11T308-MS	M	●	●	●	9.525	3.97	0.8	4.4
SCMT09T304-MS	M	●	●	●	9.525	3.97	0.4	4.4
SCMT09T308-MS	M	●	●	●	9.525	3.97	0.8	4.4
SCMT120404-MS	M	●	●	●	12.7	4.76	0.4	5.5
SCMT120408-MS	M	●	●	●	12.7	4.76	0.8	5.5
SCMT120412-MS	M	●	●	●	12.7	4.76	1.2	5.5

Vc 14

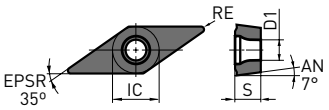
5° / 7° POSITIVE INSERTS

(WITH HOLE)

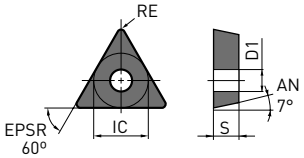
S

M Class
TCMT, VBMT, VCMT

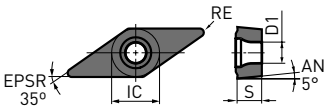
VCMT



TCMT



VBMT



CHIP BREAKER IDENTIFICATION		
APPLICATION	L	M
CHIP BREAKER	LS	MS

Order Number	Cutting Range	MP9005	MP9015	MT9005	IC	S	RE	D1
TCMT090202-LS	L	●	●	●	5.56	2.38	0.2	2.5
TCMT090204-MS	M	●	●	●	5.56	2.38	0.4	2.5
TCMT090208-MS	M	●	●	●	5.56	2.38	0.8	2.5
TCMT110202-LS	L	●	●	●	6.35	2.38	0.2	2.8
TCMT110204-MS	M	●	●		6.35	2.38	0.4	2.8
TCMT110208-MS	M	●	●		6.35	2.38	0.8	2.8
TCMT16T304-MS	M	●	●	●	9.525	3.97	0.4	4.4
TCMT16T308-MS	M	●	●	●	9.525	3.97	0.8	4.4
TCMT16T312-MS	M	●	●	●	9.525	3.97	1.2	4.4
VBMT110302-LS	L	●	●	●	6.35	3.18	0.2	2.85
VBMT110304-LS	L	●	●	●	6.35	3.18	0.4	2.85
VBMT110308-LS	L	●	●	●	6.35	3.18	0.8	2.85
VBMT160404-LS	L	●	●	●	9.525	4.76	0.4	4.4
VBMT160408-LS	L	●	●	●	9.525	4.76	0.8	4.4
VBMT160402-MS	M	●	●	●	9.525	4.76	0.2	4.43
VBMT160404-MS	M	●	●	●	9.525	4.76	0.4	4.4
VBMT160408-MS	M	●	●	●	9.525	4.76	0.8	4.4
VBMT160412-MS	M	●	●	●	9.525	4.76	1.2	4.43
VCMT110302-LS	L	●	●	●	6.35	3.18	0.2	2.8
VCMT110304-LS	L	●	●	●	6.35	3.18	0.4	2.8
VCMT110302-MS	M	●	●		6.35	3.18	0.2	2.8
VCMT110304-MS	M	●	●	●	6.35	3.18	0.4	2.8
VCMT110308-MS	M	●	●	●	6.35	3.18	0.8	2.8
VCMT160404-LS	L	●	●	●	9.525	4.76	0.4	4.4
VCMT160408-LS	L	●	●	●	9.525	4.76	0.8	4.4
VCMT160404-MS	M	●	●	●	9.525	4.76	0.4	4.4
VCMT160408-MS	M	●	●	●	9.525	4.76	0.8	4.4

Vc 14

● : Inventory maintained. ★ : Inventory maintained in Japan.

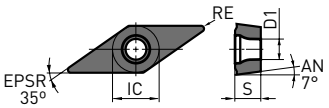
7° POSITIVE INSERTS

MINUS TOLERANCE (WITH HOLE)

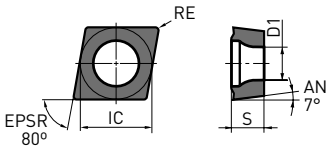
S

G Class
CCGT, DCGT, VCGT

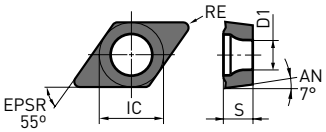
VCGT



CCGT



DCGT



CHIP BREAKER IDENTIFICATION		
APPLICATION	F	L
CHIP BREAKER	FS	LS

Order Number	Cutting Range	MP9005	MP9015	MT9005	IC	S	RE	D1
CCGT060201M-FS	F	●	●		6.35	2.38	0.08	2.8
CCGT060201M-LS	L	●	●		6.35	2.38	0.08	2.8
CCGT060202M-FS	F	●	●		6.35	2.38	0.18	2.8
CCGT060202M-LS	L	●	●		6.35	2.38	0.18	2.8
CCGT09T301M-FS	F	●	●		9.525	3.97	0.08	4.4
CCGT09T301M-LS	L	●	●		9.525	3.97	0.08	4.4
CCGT09T302M-FS	F	●	●		9.525	3.97	0.18	4.4
CCGT09T302M-LS	L	●	●		9.525	3.97	0.18	4.4
CCGT09T304M-FS	F	●	●		9.525	3.97	0.38	4.4
CCGT09T304M-LS	L	●	●		9.525	3.97	0.38	4.4
DCGT070201M-FS	F	●	●		6.35	2.38	0.08	2.8
DCGT070201M-LS	L	●	●		6.35	2.38	0.08	2.8
DCGT070202M-FS	F	●	●		6.35	2.38	0.18	2.8
DCGT070202M-LS	L	●	●		6.35	2.38	0.18	2.8
DCGT070204M-LS	L	●	●		6.35	2.38	0.38	2.8
DCGT11T301M-FS	F	●	●		9.525	3.97	0.08	4.4
DCGT11T301M-LS	L	●	●		9.525	3.97	0.08	4.4
DCGT11T302M-FS	F	●	●		9.525	3.97	0.18	4.4
DCGT11T302M-LS	L	●	●		9.525	3.97	0.18	4.4
DCGT11T304M-LS	L	●	●		9.525	3.97	0.38	4.4
VCGT110301M-LS	L	●	●		6.35	3.18	0.08	2.8
VCGT110302M-LS	L	●	●		6.35	3.18	0.18	2.8
VCGT110304M-LS	L	●	●		6.35	3.18	0.38	2.8
VCGT130301M-LS	L	●	●		7.94	3.18	0.08	3.4
VCGT130302M-LS	L	●	●		7.94	3.18	0.18	3.4
VCGT130304M-LS	L	●	●		7.94	3.18	0.38	3.4

Vc 14

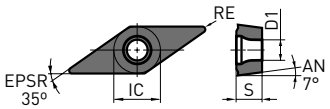
5° / 7° POSITIVE INSERTS

MINUS TOLERANCE / POLISHED (WITH HOLE)

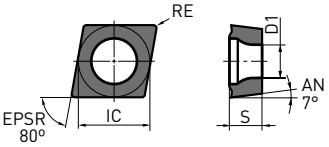
S

G Class
CCGT, DCGT, VCGT

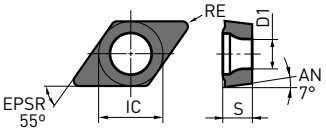
VCGT



CCGT



DCGT



CHIP BREAKER IDENTIFICATION		
APPLICATION	F	L
CHIP BREAKER	FS-P	LS-P

Order Number	Cutting Range	MP9005	MP9015	MT9005	IC	S	RE	D1
CCGT060201M-FS-P	F			●	6.35	2.38	0.08	2.8
CCGT060202M-FS-P	F			●	6.35	2.38	0.18	2.8
CCGT09T301M-FS-P	F			●	9.525	3.97	0.08	4.4
CCGT09T302M-FS-P	F			●	9.525	3.97	0.18	4.4
CCGT09T304M-FS-P	F			●	9.525	3.97	0.38	4.4
DCGT070201M-FS-P	F			●	6.35	2.38	0.08	2.8
DCGT070202M-FS-P	F			●	6.35	2.38	0.18	2.8
DCGT11T301M-FS-P	F			●	9.525	3.97	0.08	4.4
DCGT11T302M-FS-P	F			●	9.525	3.97	0.18	4.4
CCGT060201M-LS-P	L			●	6.35	2.38	0.08	2.8
CCGT060202M-LS-P	L			●	6.35	2.38	0.18	2.8
CCGT09T301M-LS-P	L			●	9.525	3.97	0.08	4.4
CCGT09T302M-LS-P	L			●	9.525	3.97	0.18	4.4
CCGT09T304M-LS-P	L			●	9.525	3.97	0.38	4.4
DCGT070201M-LS-P	L			●	6.35	2.38	0.08	2.8
DCGT070202M-LS-P	L			●	6.35	2.38	0.18	2.8
DCGT070204M-LS-P	L			●	6.35	2.38	0.38	2.8
DCGT11T301M-LS-P	L			●	9.525	3.97	0.08	4.4
DCGT11T302M-LS-P	L			●	9.525	3.97	0.18	4.4
DCGT11T304M-LS-P	L			●	9.525	3.97	0.38	4.4
VCGT110301M-LS-P	L			●	6.35	3.18	0.08	2.8
VCGT110302M-LS-P	L			●	6.35	3.18	0.18	2.8
VCGT110304M-LS-P	L			●	6.35	3.18	0.38	2.8
VCGT130301M-LS-P	L			●	7.94	3.18	0.08	3.4
VCGT130302M-LS-P	L			●	7.94	3.18	0.18	3.4
VCGT130304M-LS-P	L			●	7.94	3.18	0.38	3.4

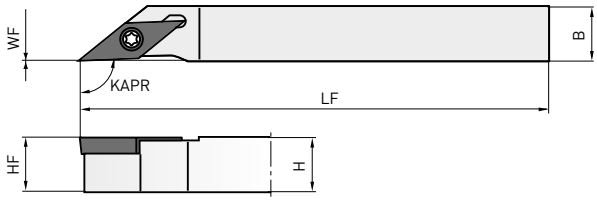
1. FS-P / LS-P: polished chip breaker for improved chip evacuation.

Vc 14

● : Inventory maintained. ★ : Inventory maintained in Japan.

SVJC

TOOL HOLDER FOR VC*T11/13 INSERTS



Order Number	Stock		Insert		H	B	LF	HF	LH	WF	Insert Screw	Wrench
	R	L										
SVJCR/L1010JX11-SM	●	●	VCGT	1103	10	10	120	10	22	0	TS255	TKY08R
SVJCR/L1212JX11-SM	●	●			12	12	120	12	22	0		
SVJCR/L1616JX11-SM	●	●			16	16	120	16	22	0		
SVJCR/L1010JX13-SM	●	●		1303	10	10	120	10	26	0	TS32	TKY08R
SVJCR/L1212JX13-SM	●	●			12	12	120	12	26	0		
SVJCR/L1616JX13-SM	●	●			16	16	120	16	26	0		

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERTS

	Material	Conditions	Cutting Range	Chip Beaker	Grade	Vc	f	ap
M	Precipitation Hardening Stainless Steels (DIN X5CrNiCuNb17-4)	Stable Cutting	Light	LS	MP9005	125–175	0.10–0.25	0.2–0.8
			Medium	MS	MP9005	115–160	0.10–0.25	0.5–4.0
			Rough	RS	MP9015	105–150	0.20–0.35	1.0–4.0
		General Cutting	Light	LS	MP9015	120–165	0.10–0.25	0.2–0.8
			Medium	MS	MP9015	110–150	0.10–0.25	0.5–4.0
			Rough	RS	MP9015	100–140	0.20–0.35	1.0–4.0
		Unstable Cutting	Light	LS	MP9025	80–95	0.10–0.25	0.2–0.8
			Medium	MS	MP9025	75–90	0.16–0.50	0.5–4.0
			Rough	RS	MP9025	70–85	0.20–0.35	1.0–4.0
S	Titanium Alloy (Ti-6Al-4V)	Stable Cutting	Light	LS	MT9015	40–85	0.10–0.25	0.2–0.8
			Medium	MS	MT9015	40–80	0.10–0.25	0.5–4.0
			Rough	RS	MT9015	35–75	0.20–0.35	1.0–4.0
		General Cutting	Light	LS	MT9015	40–85	0.10–0.25	0.2–0.8
			Medium	MS	MT9015	40–80	0.10–0.25	0.5–4.0
			Rough	RS	MT9015	35–75	0.20–0.35	1.0–4.0
	Ni-Based Heat-resistant Alloy (Inconel®718, Hastelloy®, WASPALOY®) Cobalt Base Alloy (Tribaloy®, Stellite®)	Stable Cutting	Light	LS	MP9005	30–110	0.10–0.25	0.2–0.8
			Medium	MS	MP9005	30–100	0.10–0.25	0.5–4.0
			Rough	RS	MP9015	20–75	0.20–0.35	1.0–4.0
		General Cutting	Light	LS	MP9015	25–85	0.10–0.25	0.2–0.8
			Medium	MS	MP9015	25–80	0.10–0.25	0.5–4.0
			Rough	RS	MP9015	20–75	0.20–0.35	1.0–4.0
		Unstable Cutting	Light	LS	MP9025	20–30	0.10–0.25	0.2–0.8
			Medium	MS	MP9025	20–30	0.10–0.25	0.5–4.0
			Rough	RS	MP9025	20–30	0.20–0.35	1.0–4.0

1. When cutting conditions are unstable, please refer to page 3 for recommended chip breaker and grade.
2. Verify the recommended conditions for each boring bar as cutting conditions for internal machining will vary depending on the length of overhang.
3. MC7015,MC7025 and MP7035 grade are also recommended for precipitation hardening stainless steels.

RECOMMENDED CUTTING CONDITIONS

POSITIVE INSERTS

	Material	Conditions	Cutting Range	Chip Beaker	Grade	Vc	f	ap
M	Precipitation Hardening Stainless Steels (DIN X5CrNiCuNb17-4)	Stable Cutting	Light	LS	MP9015	105–140	0.06–0.20	0.2–1.0
			Medium	MS	MP9015	85–120	0.08–0.25	0.3–2.0
		General Cutting	Light	LS	MP9015	105–140	0.06–0.20	0.2–1.0
			Medium	MS	MP9015	85–120	0.08–0.25	0.3–2.0
S	Titanium Alloy (Ti-6Al-4V)	Stable Cutting	Light	LS	MT9005	40–80	0.06–0.20	0.2–1.0
			Medium	MS	MT9005	35–65	0.08–0.25	0.3–2.0
		General Cutting	Light	LS	MT9005	40–80	0.06–0.20	0.2–1.0
			Medium	MS	MT9005	35–65	0.08–0.25	0.3–2.0
		Unstable Cutting	Light	LS	MT9005	40–80	0.06–0.20	0.2–1.0
			Medium	MS	MT9005	35–65	0.08–0.25	0.3–2.0
	Ni-Based Heat-resistant Alloy (Inconel®718, Hastelloy®, WASPALOY®)	Stable Cutting	Light	LS	MP9005	25–95	0.06–0.20	0.2–1.0
			Medium	MS	MP9005	20–80	0.08–0.25	0.3–0.2
		General Cutting	Light	LS	MP9015	20–75	0.06–0.20	0.2–1.0
			Medium	MS	MP9015	20–75	0.06–0.20	0.2–1.0
		Unstable Cutting	Light	LS	MP9015	20–75	0.06–0.20	0.2–1.0
			Medium	MS	MP9015	20–60	0.08–0.25	0.3–2.0

1. Verify the recommended conditions for each boring bar as cutting conditions for internal machining will vary depending on the length of overhang.

PRECISION POSITIVE INSERTS

	Material	Conditions	Chip Beaker	Grade	Vc	f	ap
M	Precipitation Hardening Stainless Steels (DIN X5CrNiCuNb17-4)	Stable Cutting	FS	MP9005	40–80	0.04–0.10	0.2–1.4
			LS	MP9005	40–80	0.04–0.15	0.3–2.0
		General Cutting	FS	MP9015	40–80	0.04–0.10	0.2–1.4
			LS	MP9015	40–80	0.04–0.15	0.3–2.0
		Unstable Cutting	LS	MP9015	30–60	0.04–0.10	0.3–1.0
S	Titanium Alloy (Ti-6Al-4V)	Stable Cutting	FS–P	MT9005	40–80	0.04–0.12	0.2–1.4
			LS–P	MT9005	40–80	0.04–0.20	0.3–3.0
		General Cutting	FS–P	MT9005	40–80	0.04–0.12	0.2–1.4
			LS–P	MT9005	40–80	0.04–0.12	0.3–2.0
		Unstable Cutting	LS–P	MT9005	30–60	0.04–0.10	0.2–1.4
	Cobalt Chromium Alloys (Co-Cr-Mo Alloys) Precipitation Hardening Stainless Steels (X5CrNiCuNb17-4)	Stable Cutting	FS	MP9005	40–80	0.04–0.10	0.2–1.4
			LS	MP9005	40–80	0.04–0.15	0.2–2.0
		General Cutting	FS	MP9015	40–80	0.04–0.10	0.2–1.4
			LS	MP9015	40–80	0.04–0.15	0.3–2.0
		Unstable Cutting	LS	MP9015	30–60	0.04–0.10	0.3–1.0
	Ni-Based Heat-resistant Alloy (Inconel®718, Hastelloy®, WASPALOY®)	Stable Cutting	FS	MP9015	25–95	0.04–0.12	0.2–1.4
			LS	MP9015	25–95	0.04–0.12	0.3–2.0
		General Cutting	FS	MP9015	20–75	0.04–0.12	0.2–1.4
			LS	MP9015	20–75	0.04–0.12	0.3–2.0
		Unstable Cutting	LS	MP9015	20–60	0.04–0.10	0.3–1.0

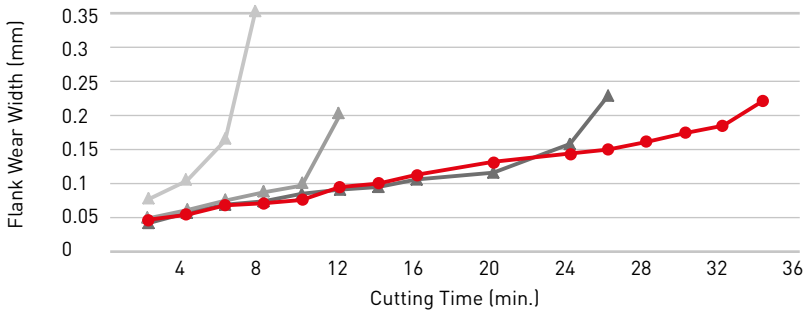
1. Verify the recommended conditions for each boring bar as cutting conditions for internal machining will vary depending on the length of overhang.

CUTTING PERFORMANCE

INCONEL®718, Vc=60 m/min CONTINUOUS MACHINING

Material	Inconel®718
Insert	CNMG120408-MS MP9015
Cutting Speed	60 m/min
Feed Rate	0.15 mm/rev
Depth of Cut	0.75 mm
Cutting Mode	Wet Cutting

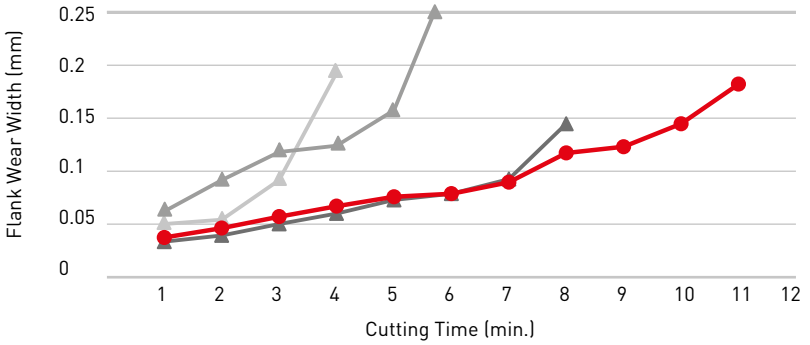
28 % Increased Tool Life



INCONEL®718, Vc=100 m/min CONTINUOUS MACHINING

Material	Inconel®718
Insert	CNMG120408-MS MP9005
Cutting Speed	100 m/min
Feed Rate	0.15 mm/rev
Depth of Cut	0.5 mm
Cutting Mode	Wet Cutting

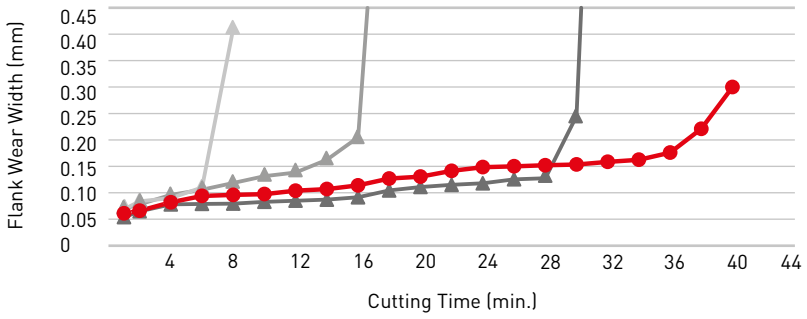
37% Increased Tool Life



INCONEL®718, Ap=2.0 mm CONTINUOUS MACHINING

Material	Inconel®718
Insert	CNMG120408-RS MP9015
Cutting Speed	40 m/min
Feed Rate	0.2 mm/rev
Depth of Cut	2.0 mm
Cutting Mode	Wet Cutting

33 % Increased Tool Life

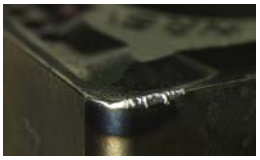


MP9005/15
Conventional A
Conventional B
Conventional C

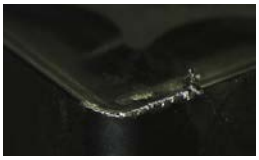
WASPALOY® MACHINING

MP9015 WITH RS BREAKER DISPLAYED THE LEAST DAMAGE

Conventional A



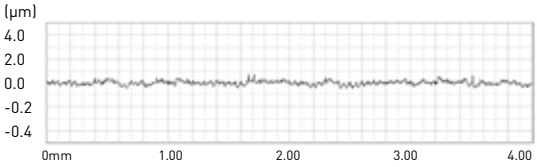
Conventional B



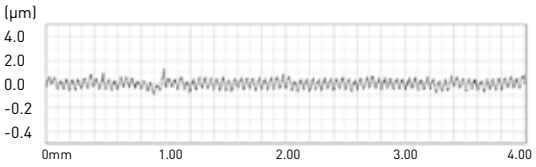
MP9015 - RS

Material	WASPALOY®
Insert	CNMG120408-RS
Cutting Speed	29 m/min
Feed Rate	0.22 mm/rev
Depth of Cut	4.0 mm
Cutting Time	7 min
Cutting Mode	Wet Cutting

TITANIUM ALLOY, COMPARISON OF SURFACE FINISH (DEPTH OF CUT : 0.25 MM)



Ra : 0.1347 μm Rz : 0.9480 μm Rzjis : 0.6240 μm

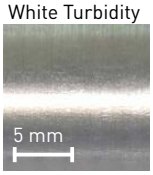


Ra : 0.2792 μm Rz : 1.6104 μm Rzjis : 1.3104 μm

Glossy Surface

MT9015 - LS

White Turbidity

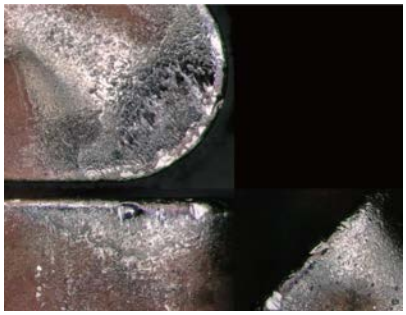


Conventional

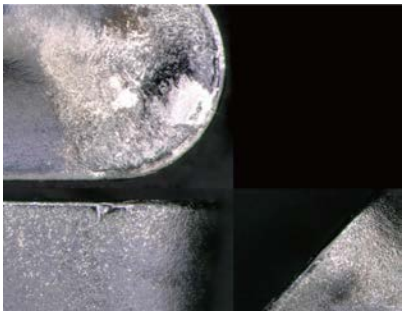
Excellent Surface Finish

Material	Ti-6Al-6V(325HB)
Insert	CNMG120408-LS
Cutting Speed	70 m/min
Feed Rate	0.05 mm/rev
Depth of Cut	0.25 mm
Cutting Mode	Wet Cutting

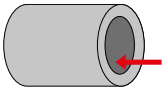
MP9015 WITH LS BREAKER DISPLAYED THE LEAST DAMAGE



Conventional



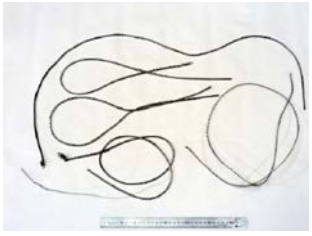
MP9015 - LS



Material	Heat-resistant Cast Steel
Insert	DCMT11T304-LS
Cutting Speed	100 m/min
Feed Rate	0.1 mm/rev
Depth of Cut	0.25 mm
Cutting Mode	Wet Cutting

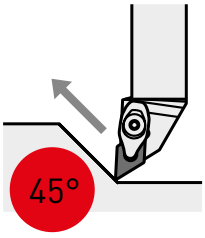
CHIP CONTROL WHEN TAPER TURNING

Non-tangling of chips when back turning Inconel®718.



MS Chip Breaker
(New Design)

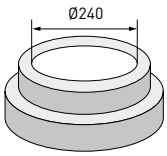
Conventional



Material	Inconel®718
Insert	DNMG150408-MS
Cutting Speed	40 m/min
Feed Rate	0.2 mm/rev
Depth of Cut	1.0 mm
Cutting Mode	Wet Cutting

APPLICATION EXAMPLES

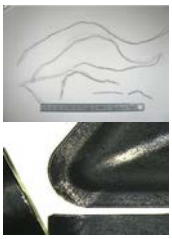
Insert	DNMG150408-MS (MP9005)
Workpiece Material	Inconel®718 (Ni-based Alloy)
Cutting mode	Wet Cutting
Cutting Speed Vc (m/min)	60
Feed f (mm/rev)	0.15
Depth of Cut (mm)	0.25
Component	Disc - Aerospace Component
Result	MP9005 - Stable machining, less wear with long tool life without chip tangling.



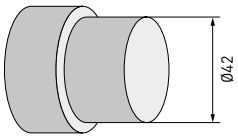
45 HRC Ageing Treatment

Conventional (S10)

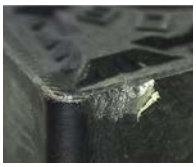
MP9005+MS



Insert	CNMG120408-RS (MP9015)
Workpiece Material	HAYNES® Alloy 25 (Ni,Co-based Alloy)
Cutting mode	Wet Cutting
Cutting Speed Vc (m/min)	34
Feed f (mm/rev)	0.20
Depth of Cut (mm)	1.5
Component	Cover Plate - Aerospace Component
Result	Both conventional and MP9015 display notch wear but the conventional grade displayed greater wear and exposed the substrate.



Conventional (S10)



MP9015+RS

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