

**MV breaker**

**The top dots design and the use of a positive land have greatly improved chip discharge ability.**

■ The MV breaker displays excellent chip discharge ability at low depth of cut machining, copying operations and pulling up operations at corner R



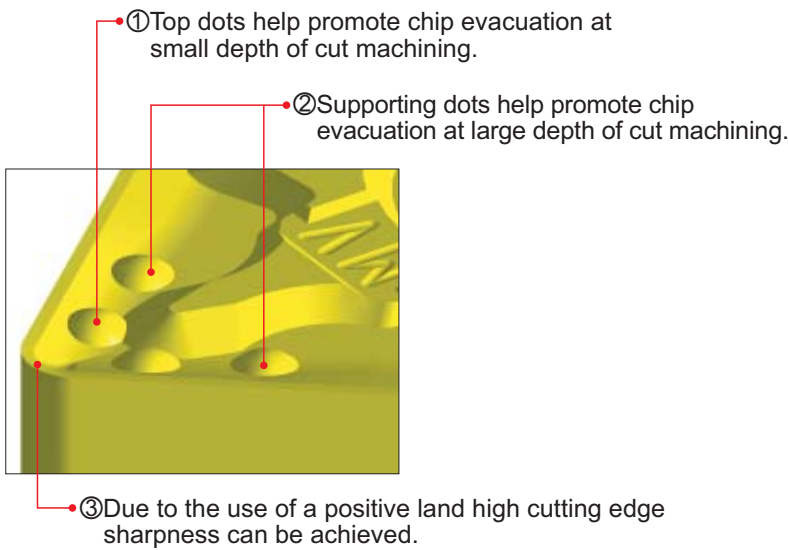
# General-purpose negative chip breaker for steel turning

# MV breaker

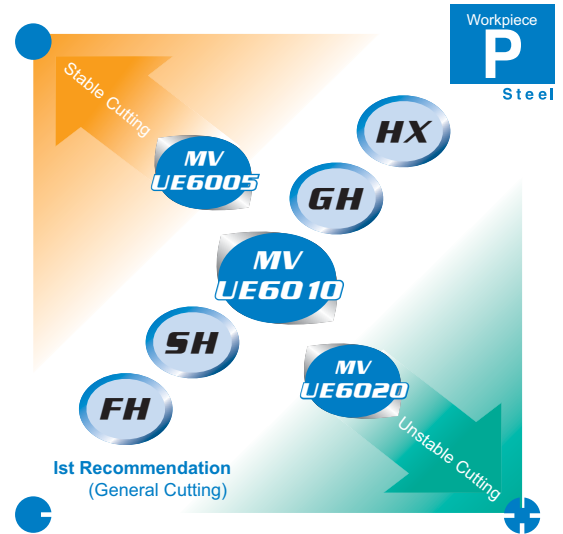
## Features

**MV breaker** is a general-purpose breaker that has greatly improved chip discharge ability at low depth of cut machining. It also displays excellent chip discharge ability at copying operations as well as pulling up operations at corner R.

### Design Concept



### Tool Navi System

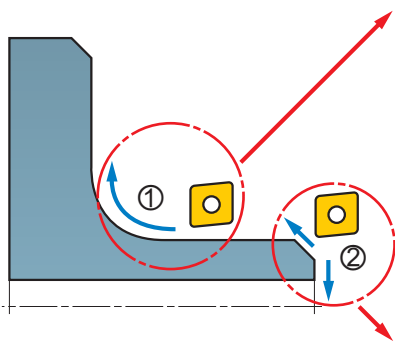


## Cutting Performance

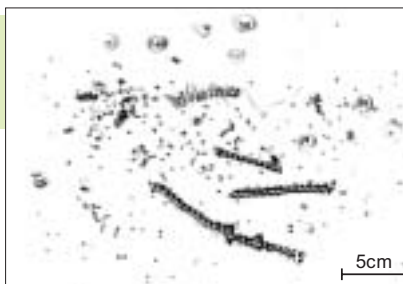
### ● Comparison of Chip discharge ability (Workpiece : JIS S50C, Insert : CNMG120412-\_\_, Wet cutting)

#### ① Pulling up at corner R

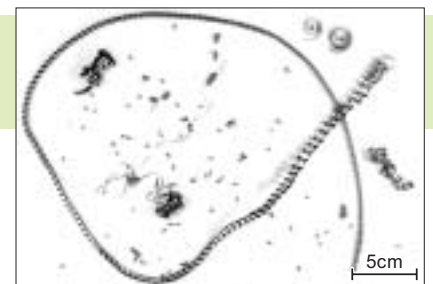
Cutting speed : 200m/min Feed : 0.25mm/rev  
Depth of cut : 0.8-3.5mm



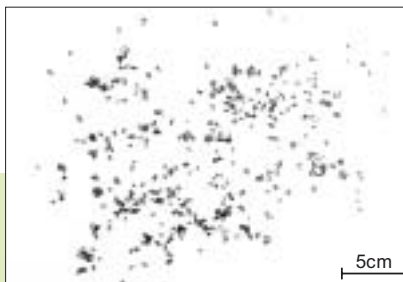
#### MV breaker



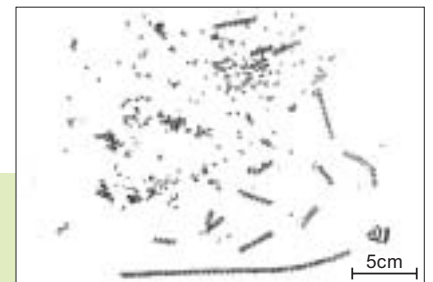
#### Competitor A's general purpose breaker



#### MV breaker



#### Competitor A's general purpose breaker



#### ② Facing+chamfering

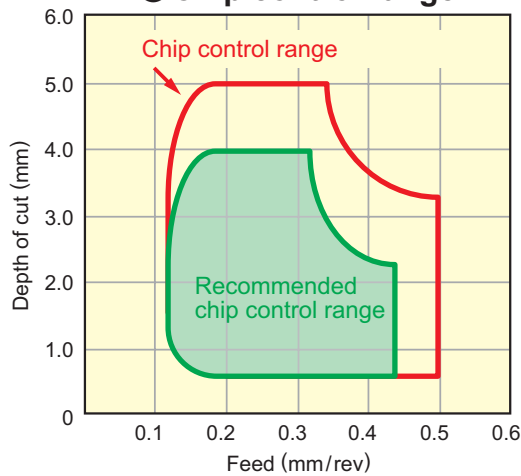
Cutting speed : 150m/min Feed : 0.25mm/rev  
Depth of cut : 1.0-1.5mm

Even at pulling up operations where smooth chip discharge is difficult to achieve, **MV breaker** securely controls and cuts generated chips.

# MVbreaker

## Cutting Performance

### ● Chip control range



<Cutting conditions>

Insert : CNMG120408-MV    Workpiece : JIS S45C  
 Cutting speed : 200m/min    Wet cutting

## Recommended Cutting Conditions

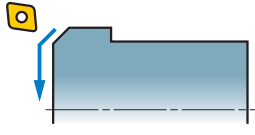
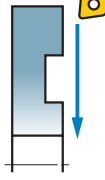
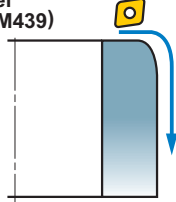

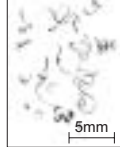
Workpiece	Hardness	Grade	Cutting Speed (m/min)
P Mild Steel (ex.JIS SS400·S10)	≤180HB	UE6005	350 (300 - 400)
		UE6010	300 (250 - 350)
		UE6020	200 (150 - 250)
Carbon Steel Alloy Steel (ex.JIS S45C·SCM440)	180 - 280HB	UE6005	250 (200 - 300)
		UE6010	200 (150 - 250)
		UE6020	160 (100 - 220)

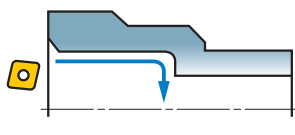
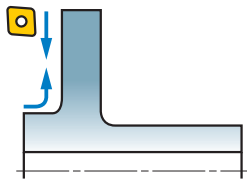
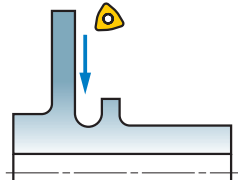






## Insert Standard

Geometry	Order Number	Coated Grade			Dimensions (mm)			
		UE6005	UE6010	UE6020	D1	S1	Re	D2
	CNMG120404-MV	●	●	●	12.70	4.76	0.4	5.16
	120408-MV	●	●	●	12.70	4.76	0.8	5.16
	120412-MV	●	●	●	12.70	4.76	1.2	5.16
	120416-MV	●	●	●	12.70	4.76	1.6	5.16
	DNMG150404-MV	●	●	●	12.70	4.76	0.4	5.16
	150408-MV	●	●	●	12.70	4.76	0.8	5.16
	150412-MV	●	●	●	12.70	4.76	1.2	5.16
	150416-MV	●	●	●	12.70	4.76	1.6	5.16
	150604-MV	●	●	●	12.70	6.35	0.4	5.16
	150608-MV	●	●	●	12.70	6.35	0.8	5.16
	150612-MV	●	●	●	12.70	6.35	1.2	5.16
150616-MV	●	●	●	12.70	6.35	1.6	5.16	
	SNMG120404-MV	●	●	●	12.70	4.76	0.4	5.16
	120408-MV	●	●	●	12.70	4.76	0.8	5.16
	120412-MV	●	●	●	12.70	4.76	1.2	5.16
	TNMG160404-MV	●	●	●	9.525	4.76	0.4	3.81
	160408-MV	●	●	●	9.525	4.76	0.8	3.81
	160412-MV	●	●	●	9.525	4.76	1.2	3.81
	220408-MV	●	●	●	12.70	4.76	0.4	5.16
	220412-MV	●	●	●	12.70	4.76	0.8	5.16
	VNMG160404-MV	●	●	●	9.525	4.76	0.4	3.81
	160408-MV	●	●	●	9.525	4.76	0.8	3.81
	WNMG06T304-MV	●	●	●	9.525	3.97	0.4	3.81
	06T308-MV	●	●	●	9.525	3.97	0.8	3.81
	06T312-MV	●	●	●	9.525	3.97	1.2	3.81
	060404-MV	●	●	●	9.525	4.76	0.4	3.81
	060408-MV	●	●	●	9.525	4.76	0.8	3.81
	060412-MV	●	●	●	9.525	4.76	1.2	3.81
	080404-MV	●	●	●	12.70	4.76	0.4	5.16
	080408-MV	●	●	●	12.70	4.76	0.8	5.16
	080412-MV	●	●	●	12.70	4.76	1.2	5.16

# MVbreaker

## Application examples

Insert (grade)	CNMG120408-MV (UE6010)	CNMG120408-MV (UE6010)	CNMG120412-MV (UE6010)	
Workpiece	Carbon steel (JIS S45C) 	Alloy steel (JIS SCM420) 	Alloy steel (JIS SNCM439) 	
Cutting condition	Cutting speed (m/min)	70 - 170	360	200
	Feed (mm/rev)	0.1	0.2	0.15 - 0.35
	Depth of cut (mm)	1	2	1.5
Coolant	Wet cutting			
Result	<p>Chip condition</p> <p><b>MVbreaker</b></p>  <p>5mm</p> <p>Competitor's general-purpose breaker</p>  <p>5mm</p>	<ul style="list-style-type: none"> <li>Due to <b>MVbreaker</b>'s excellent chip discharge ability, no scratch is left on the finished surface any more.</li> <li>Among various breakers, <b>MVbreaker</b> is the first to simultaneously satisfy needs for smooth chip discharge and long tool life.</li> </ul>	<ul style="list-style-type: none"> <li><b>MVbreaker</b> displayed far better chip discharge ability and much longer tool life, compared with conventional products. Especially, its chip discharge performance was excellent at upside machining.</li> <li><b>MVbreaker</b> obtained excellent, smooth finished surface.</li> </ul>	

Insert (grade)	CNMG120412-MV (UE6010)	CNMG120412-MV (UE6005)	WNMG080408-MV (UE6020)	
Workpiece	Carbon steel (JIS S45C) 	Alloy steel (JIS SNCM439) 	Alloy steel (SCM420) 	
Cutting condition	Cutting speed (m/min)	280	180	160
	Feed (mm/rev)	0.25	0.3 - 0.4	0.25
	Depth of cut (mm)	1.5	0.8 - 1.0	2
Coolant	Wet cutting			
Result	<p>Cutting edge condition</p> <p><b>MVbreaker UE6010</b></p> <p>80 pieces/corner</p>  <p>Competitor's general-purpose breaker P10 coating</p> <p>40 pieces/corner</p> 	<p>pieces/corner</p> <p>50 100</p> <p><b>MVbreaker UE6005</b></p>  <p>Competitor's general-purpose breaker P05 coating</p> 	<p>pieces/corner</p> <p>50 100</p> <p><b>MVbreaker UE6020</b></p>  <p>Competitor's general-purpose breaker P20 coating</p> 	

**For your safety**

●Do not touch cutting or chips without wearing gloves. ●Use tools under recommended cutting conditions, and exchange tools before excessive wear occurs. ●Chips become extremely hot, scattered over and may be stretched. Ensure safety guards and goggles are used. ●In case of using non-water soluble oil, make sure to have a fire prevention countermeasure. ●Use the provided wrench spanner, and ensure the inserts and spare parts are damped securely.

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