

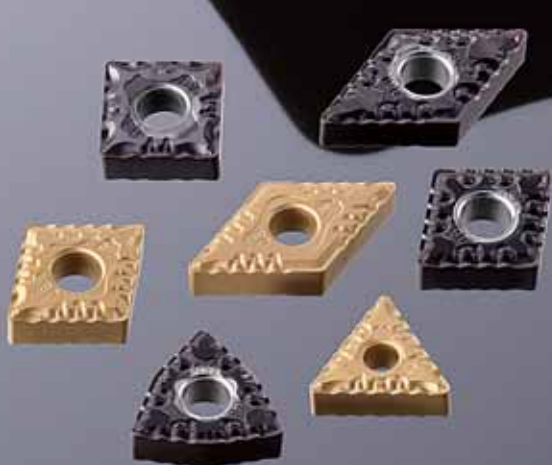
Chip Breakers for Low Carbon Steel

Insert
addition

FY/SY breaker

A sharp breaker wall produces ideal chips

Optimum chip control for low carbon steel



*Chip Breakers for Low Carbon Steel

FY/SY breaker

*Low carbon steel: Carbon steel with up to 0.3% carbon content, iron plate, STKM etc..

Problems in the machining process

Unstable chips cause: –

Sudden insert fracturing
➔ Low efficiency rate

Flaws in work pieces
➔ High scrap rates

Short machine stoppages
➔ Difficult to automate

FY and SY chip breakers
for solving your machining
problems.

Point

Non-tangling of chips is the key to the successful machining of low carbon steel.

Existing chip breakers

Long chips cause machine stoppages.



FY/SY chip breakers



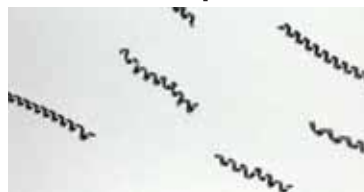
Ideal chip shapes aid stable machining.

Existing chip breakers

Continuous chip tangles are caused.



FY/SY chip breakers



Broken chips aid stable machining.

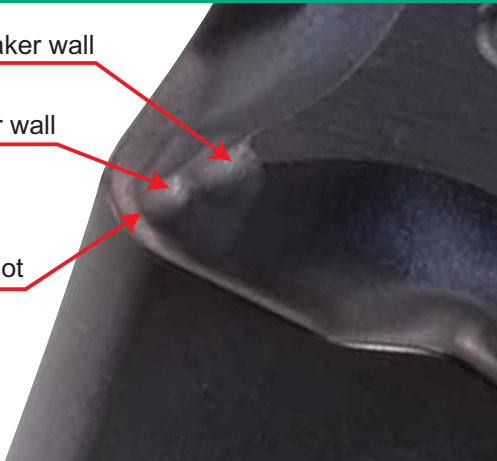
FY/SY breaker

FY chip breaker for finishing

Second breaker wall

First breaker wall

Peninsular dot

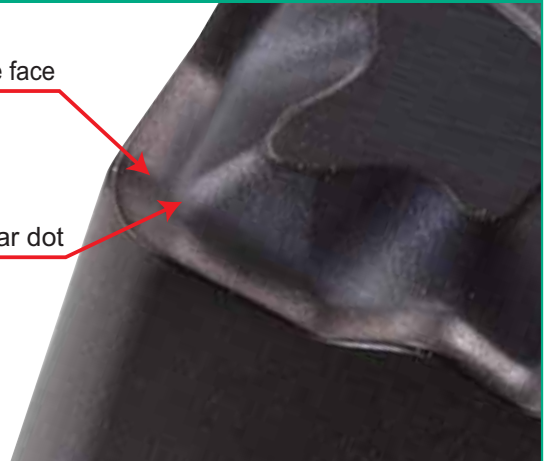


- Two-stage breaker walls at the peninsular dot point ensures a good chip shape at low and high feed cutting.
- The wavy cutting edge creates ideally shaped chips even when copying.

SY chip breaker for semi-finishing

Wide rake face

Peninsular dot



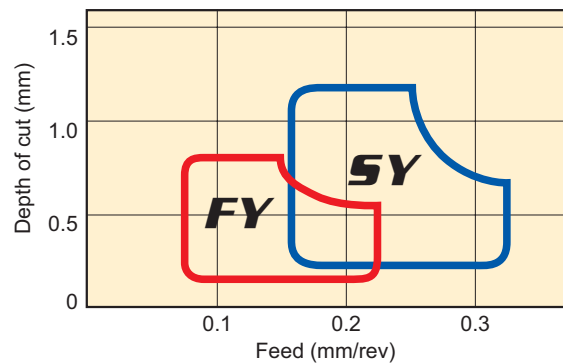
- The combination of a peninsular dot and a wide rake face results in good chip dispersal.
- The wavy cutting edge creates ideally shaped chips even when copying.

Recommended Cutting Conditions

Work Material	Hardness	Breaker	Grade	Cutting Speed (m/min)
P Iron plate (SPC, SPH)	80–120HB	FY	VP25N	290–450
			UE6020	290–460
		SY	VP25N	260–410
			UE6020	260–420
Low Carbon Steel (S10C–S30C) Pipes (STKM)	110–160HB	FY	VP25N	260–410
			UE6020	260–420
		SY	VP25N	240–370
			UE6020	240–390

Note) Mitsubishi's FH and SH breakers are recommended for general steel and alloy steel.

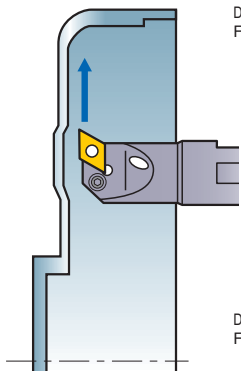
Chip Control Range



Cutting Performance

- An ideal chip shape aids high cutting performance.

<Cutting Conditions>
Work Material : SPC
Cutting Speed : 300m/min
Wet Cutting



Depth of cut : 0.3mm
Feed : 0.1mm/rev

Competitor A



FY breaker Best chip control



Competitor B



SY breaker Best chip control



Inserts

Shape	Order Number	Grade		Dimensions (mm)				Geometry
		Coated Cermet	Coated	D1	S1	Re	D2	
		VP25N	UE6020					
	CNMG120404-FY	●	●	12.7	4.76	0.4	5.16	
	120408-FY	●	●	12.7	4.76	0.8	5.16	
	DNMG150404-FY	●	●	12.7	4.76	0.4	5.16	
	150408-FY	●	●	12.7	4.76	0.8	5.16	
	150604-FY	●	●	12.7	6.35	0.4	5.16	
	150608-FY	●	●	12.7	6.35	0.8	5.16	
	SNMG120408-FY	●	●	12.7	4.76	0.8	5.16	
	TNMG160404-FY	●	●	9.525	4.76	0.4	3.81	
	160408-FY	●	●	9.525	4.76	0.8	3.81	
	WNMG080404-FY	●	●	12.7	4.76	0.4	5.16	
	080408-FY	●	●	12.7	4.76	0.8	5.16	
	CNMG120404-SY	●	●	12.7	4.76	0.4	5.16	
	120408-SY	●	●	12.7	4.76	0.8	5.16	
	DNMG150404-SY	●	●	12.7	4.76	0.4	5.16	
	150408-SY	●	●	12.7	4.76	0.8	5.16	
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	080408-SY	●	●	12.7	4.76	0.8	5.16	

● : Inventory maintained.

For Your Safety

●Do not touch cutting edges and chips without gloves. ●Machine within the recommended conditions, and replace worn tools with new ones before breakage. ●Use protectors such as safety covers and protective glasses. High-temperature chips can scatter and long chips can be discharged. ●Always take precautions against fire when using water-insoluble coolant. ●Clamp the inserts and parts firmly with the wrench or spanner provided.

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(Tools specifications subject to change without notice.)