



## VISION Series

General Inserts for turning

# VF Breaker

**New**

### Features

#### Finishing-purpose of negative chip breaker for steel turning

- Improved chip control on various workpiece such as soft steel and alloy steel. etc.
- Combination of specially designed 3 dimensional chip breaker and rigid cutting edge guarantee long tool life.
- Very good surface finish in medium-finishing.



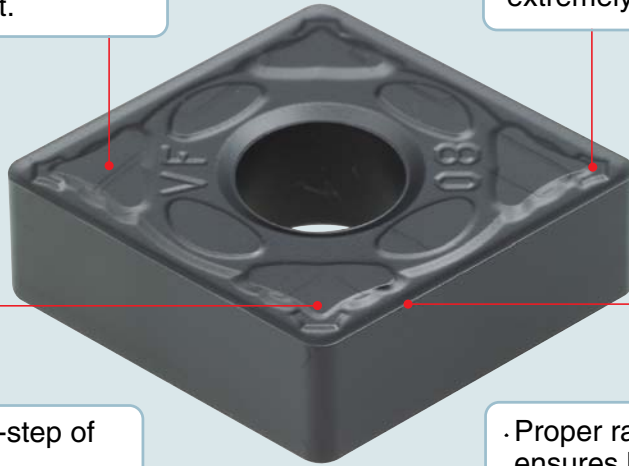
# VF Breaker

Concept of VF-Design | Recommended Cutting Conditions

## Concept of VF-Design

· Wide contact area of insert with holder prevents chipping due to fully clamped of insert.

· Unique design in cutting area ensures superior chip control in extremely small depth-of-cut

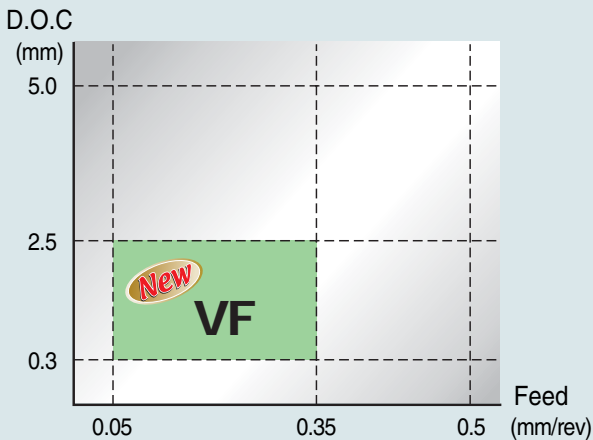


· Smooth chip curling in 2-step of chip breaker.  
· Reduce chip control resistance at high speed & feed cutting

· Proper rake angle of cutting edge ensures better surface finish and low cutting resistance

## Chip Control Range

Feed = 0.05 ~ 0.35 mm/rev  
D.O.C = 0.3 ~ 2.5 mm



## Recommended Cutting Conditions

Workpiece	Hardness	Grade	vc (m/min)
P	≤180HB	NC3010	310 (270~350)
		NC3120	290 (250~330)
		NC3030	270 (230~300)
	180~260HB	NC3010	220 (180~250)
		NC3120	200 (170~230)
		NC3030	190 (160~210)
260~350HB	NC3010	130 (100~150)	
	NC3120	120 (90~140)	
	NC3030	110 (80~130)	



# VF Breaker

Application examples | Chip Control Evaluation

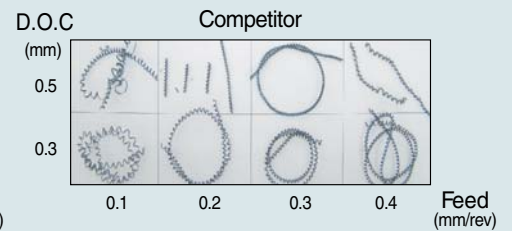
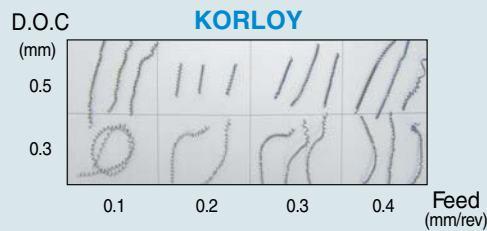
## Application examples

Workpiece	Workpiece (Material)	Designation (Grade)	Cutting condition		Result
	Shaft (SM20C)	DNMG150604-VF (NC3020)	vc	200 m/min	
			fn	0.3~0.35 mm/rev	
			ap	0.5~1.0 mm	
	Front Piston (SM10C)	CNMG120408-VF (NC3020)	vc	180 m/min	
			fn	0.35 mm/rev	
			ap	0.5~1.0 mm	
	Flange (SM45)	CNMG120408-VF (NC3020)	vc	250 m/min	
			fn	0.3 mm/rev	
			ap	1.0~1.5 mm	
	bearing parts (SUJ2)	DNMG150608-VF (NC3010)	vc	270 m/min	
			fn	0.2~0.25 mm/rev	
			ap	1.0~2.0 mm	

## Chip Control Evaluation

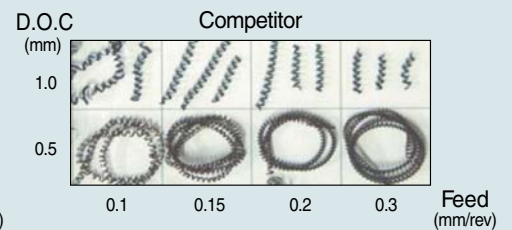
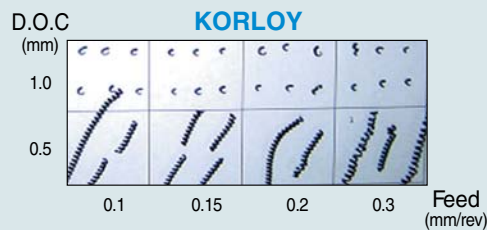
### ■ Cutting condition

- Workpiece : SM25C
- Designation : CNMG120408-VF
- vc = 200m/min



### ■ Cutting condition

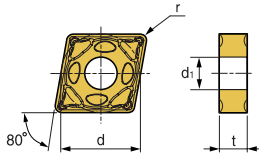
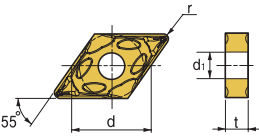
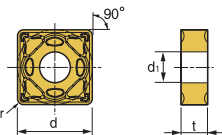
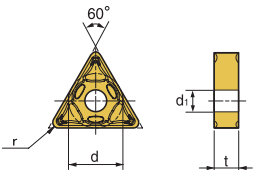
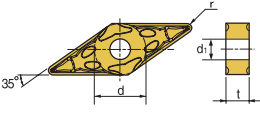
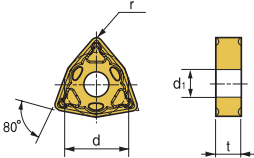
- Workpiece : SCM440
- Designation : CNMG120408-VF
- vc = 200m/min



# VF Breaker

VF-Insert

## VF-Insert

Geometry	Designation	Coated			Dimensions(mm)			
		NC3010	NC3120	NC3030	d	t	r	d <sub>i</sub>
	CNMG090304-VF	●	●		9.525	3.18	0.4	3.81
	CNMG090308-VF	●	●		9.525	3.18	0.8	3.81
	CNMG120404-VF	●	●		12.7	4.76	0.4	5.16
	CNMG120408-VF	●	●		12.7	4.76	0.8	5.16
	CNMG120412-VF		●		12.7	4.76	1.2	5.16
	DNMG110402-VF		●		9.525	4.76	0.2	3.81
	DNMG110404-VF	○	●		9.525	4.76	0.4	3.81
	DNMG110408-VF	○	●		9.525	4.76	0.8	3.81
	DNMG150404-VF	○	●		12.7	4.76	0.4	5.16
	DNMG150408-VF	○	●		12.7	4.76	0.8	5.16
	DNMG150412-VF				12.7	4.76	1.2	5.16
	DNMG150604-VF	●	●		12.7	6.35	0.4	5.16
	DNMG150608-VF	●	●		12.7	6.35	0.8	5.16
	SNMG090304-VF		●		9.525	3.18	0.4	3.81
	SNMG120404-VF		●	○	12.7	4.76	0.4	5.16
	SNMG120408-VF	●	●	○	12.7	4.76	0.8	5.16
	TNMG110304-VF		●		6.35	3.18	0.4	2.26
	TNMG160404-VF		●		9.525	4.76	0.4	3.81
	TNMG160408-VF	●	●		9.525	4.76	0.8	3.81
	TNMG160412-VF		●		9.525	4.76	1.2	3.81
	TNMG220404-VF		●		12.7	4.76	0.4	5.16
	TNMG220408-VF		●		12.7	4.76	0.8	5.16
	VNMG160402-VF		●		9.525	4.76	0.2	3.81
	VNMG160404-VF	●	●		9.525	4.76	0.4	3.81
	VNMG160408-VF		●		9.525	4.76	0.8	3.81
	WNMG060404-VF	●	●		9.525	4.76	0.4	3.81
	WNMG060408-VF	●	●		9.525	4.76	0.8	3.81
	WNMG080404-VF	●	●		12.7	4.76	0.4	5.16
	WNMG080408-VF		●		12.7	4.76	0.8	5.16

● Stock item, ○ Under preparing for stock



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