

THE NEW VALUE FRONTIER



Micro boring | **PF** chipbreaker

# PF chipbreaker



Excellent chip control and low cutting force

Superior chip control in a wide range of cutting conditions

Minimum cutting diameter  $\phi 5$  mm~

Anti-welding properties with improved mirror surface finish

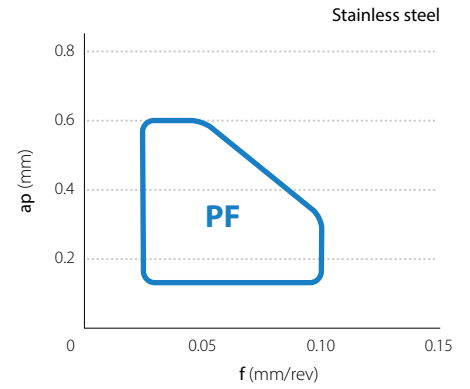


Micro boring

# PF chipbreaker

Excellent chip control and low cutting force

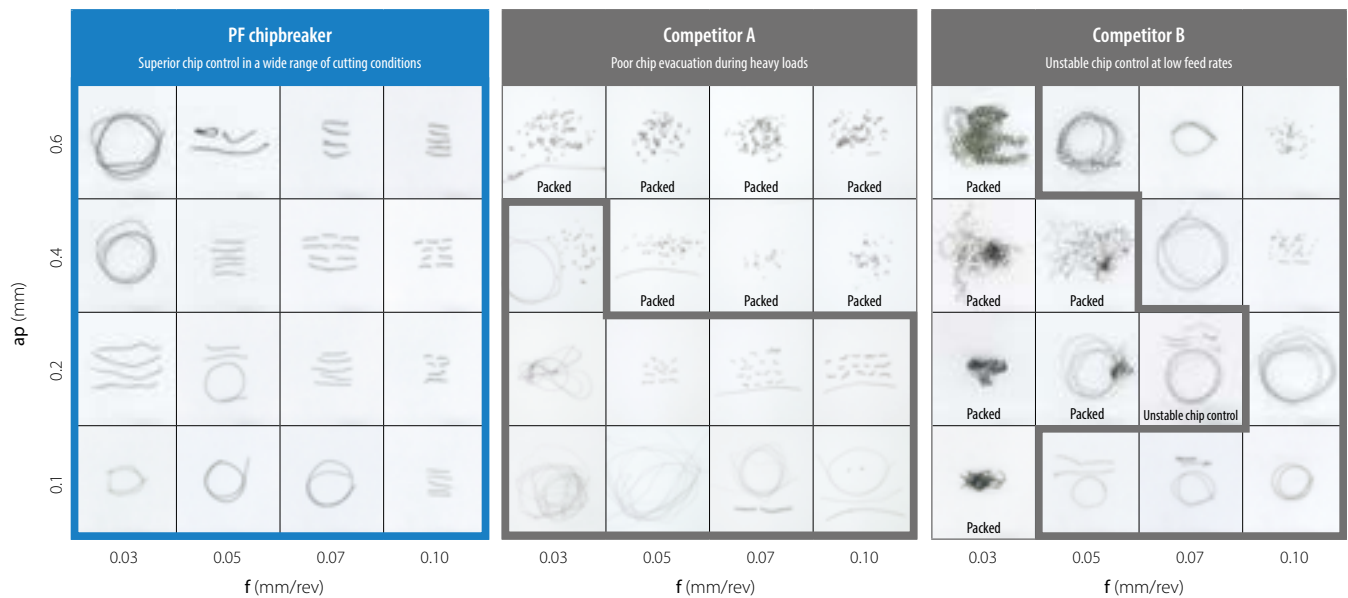
Applicable chipbreaker range



## 1 Excellent chip control

Superior chip control for micro boring (Minimum cutting diameter  $\phi 5$  mm~)

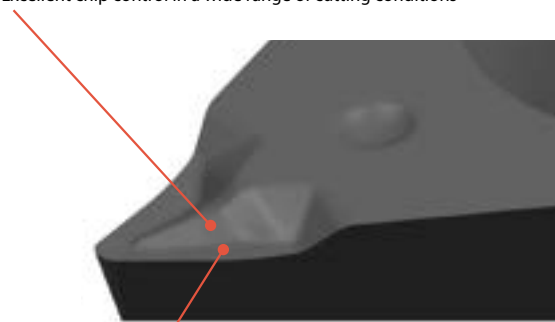
Chip control comparison (In-house evaluation)



Cutting conditions:  $V_c = 80$  m/min, wet, workpiece: X5CrNi1810

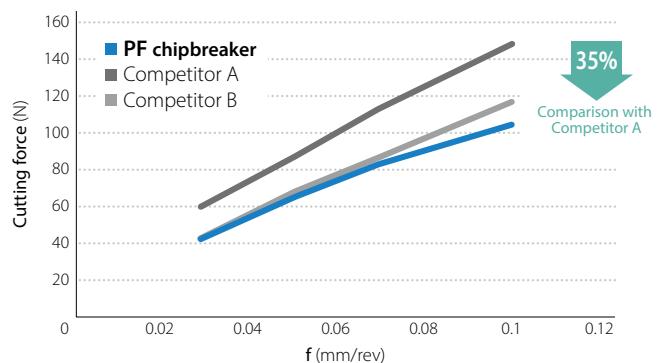
## 2 Improved cutting edge with a low cutting force design

Optimized edge design  
Excellent chip control in a wide range of cutting conditions



Large rake angle and low cutting forces  
Sharpened cutting edge reduces cutting forces

Cutting force comparison (In-house evaluation)



Lower cutting force compared with competitor A and B

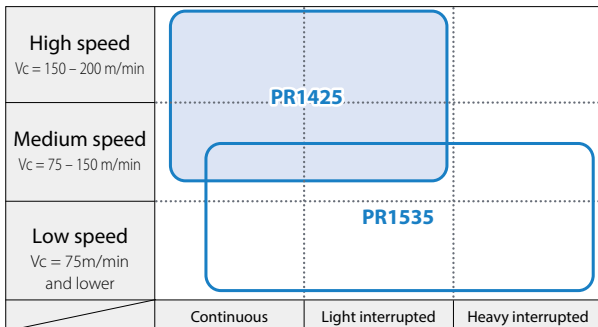
Cutting conditions:  $V_c = 80$  m/min,  $a_p = 0.4$  mm, wet, workpiece: X5CrNi1810

**3** High precision with periphery grinding and sharp edge

**4** Anti-welding properties with improved mirror surface finish

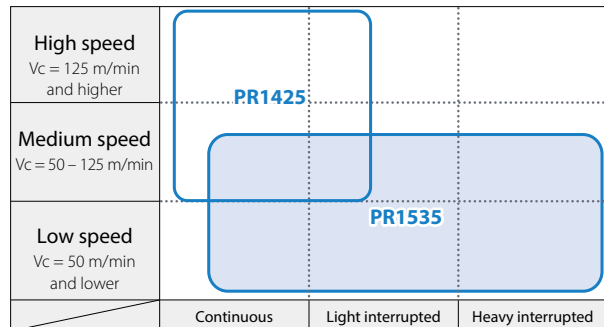
## Application maps

### Steel



1st recommendation: PR1425  
High reliability in light interrupted cuts: PR1535

### Stainless steel



1st recommendation: PR1535  
Longer tool life at high speeds: PR1425

## High precision machining combining with EZ Bar PLUS

Indexable EZ Bar for small diameter boring

### EZ Bar PLUS

High precision solid bar with convenience of indexable inserts  
Reduces machining costs

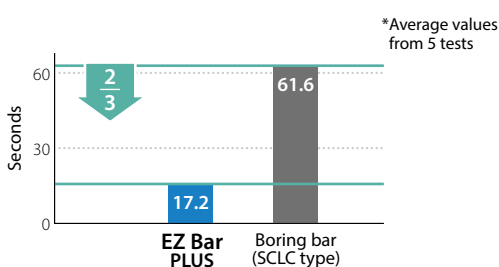
● Minimum bore diameter 5 mm

Carbide or steel bars can be selected depending on the machining purpose

● Reduces installing times by 1/3

The EZ adjust structure features much lower mounting times compared to conventional boring bars

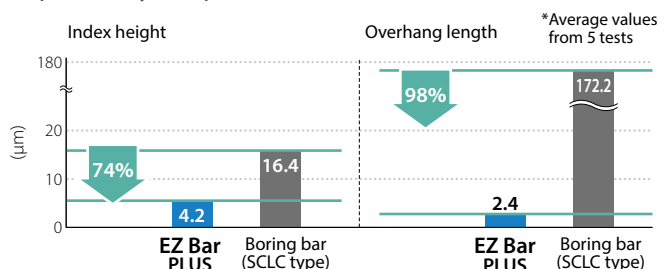
Mounting time comparison (In-house evaluation)




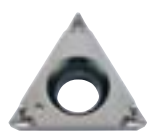

● Excellent and accurate repeatability

The EZ adjust structure features higher repeatability accuracy compared with conventional boring bars

Repeatability comparison (In-house evaluation)



## Available inserts

Shape Left-hand shown for handed insert	Description	Dimensions (mm)				Relief angle	Grade			
		I.C.	Thickness	Hole	Corner-R (RE)		MEGACOAT NANO			
							PR1425	PR1535		
Finishing  Sharp edge / Mirror surface finish	CCGT 030101MFP-PF	3.5	1.40	1.9	< 0.1	7°	●	●		
	030102MFP-PF				< 0.2		●	●		
	CCGT 040101MFP-PF	4.3	1.80	2.3	< 0.1		●	●		
	040102MFP-PF				< 0.2		●	●		
	CCGT 060201MFP-PF	6.35	2.38	2.8	< 0.1		●	●		
	060202MFP-PF				< 0.2		●	●		
	060204MFP-PF				< 0.4		●	●		
	Finishing  Sharp edge / Mirror surface finish	TBGT 060101MFP-PF	3.97	1.59	2.3		< 0.1	5°	●	●
		060102MFP-PF					< 0.2		●	●
060104MFP-PF		< 0.4				●	●			
TPGT 090201MFP-PF		5.56	2.38	3.0	< 0.1	11°	●	●		
090202MFP-PF					< 0.2		●	●		
090204MFP-PF					< 0.4		●	●		
Finishing  Sharp edge / Mirror surface finish	WBGT 060101MFP <sup>R</sup> / <sub>L</sub> -PF	3.97	1.59	2.3	< 0.1	5°	●	●		
	060102MFP <sup>R</sup> / <sub>L</sub> -PF				< 0.2		●	●		
	WBGT 080201MFP <sup>R</sup> / <sub>L</sub> -PF	4.76	2.38	2.3	< 0.1		●	●		
	080202MFP <sup>R</sup> / <sub>L</sub> -PF				< 0.2		●	●		

An insert which corner R(RE) dimension is shown with inequality sign (Ex: < 0.1, < 0.2, < 0.4) indicates minus tolerance of corner R(RE)

●: Available

## Applicable chipbreaker range

