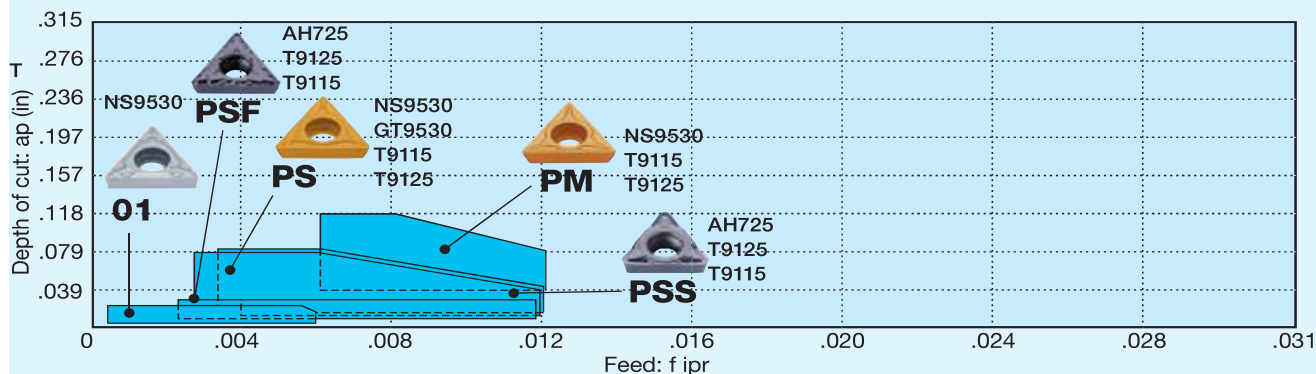


# Basic Chipbreakers Positive Inserts

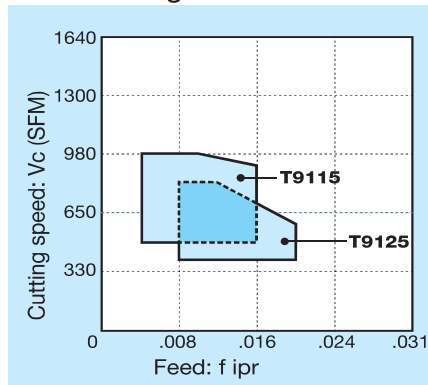
## P Steel

### Chipbreaker System for Turning (Positive Inserts)

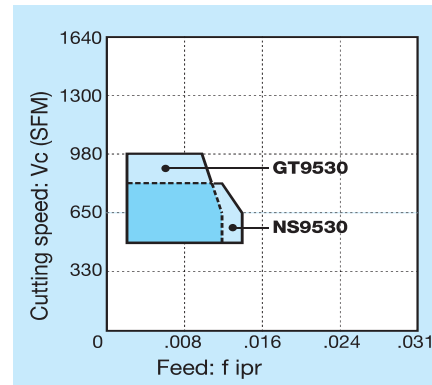
2  
TAC Inserts



#### CVD coated grades



#### Coated cermets / Cermets



Chipbreaker	Appearance	Features
<b>01</b>		The sharp cutting edge and raised projection near corner contribute to excellent chip control at very small depth of cut and low feed.
<b>PSF</b>		Developed chipbreaker for finishing at low cutting depths. Optimal chip control due to pre-positioned chipbreaker element.
<b>PSS</b>		3-dimensional chipbreaker designed to have excellent chip control capability and low cutting force in finishing to medium cutting. Low cost, M-class positive insert used for high efficiency boring in a wide range of applications.

Chipbreaker	Appearance	Features
<b>PS</b>		3-dimensional chipbreaker designed to have excellent chip control capability and low cutting force in finishing to medium cutting. Low cost, M-class positive insert used for high efficiency boring in a wide range of applications.
<b>PM</b>		Developed chipbreaker for medium cutting. Excellent chip control due to wide, positive chip flow zone.

### Standard Cutting Conditions

Operation	Work condition	Chip-breaker	Grade	Depth of cut $a_p$ (in)	Feed $f$ ipr	Cutting speed $V_c$ (SFM)		
						Low carbon steels Alloy steels	Medium carbon steels Alloy steels	Hi carbon steels Alloy steels
Precision finishing	Continuous Light interrupted	<b>01</b>	<b>NS9530</b>	.002 - .020	0.03 - .006	500 - 980 500 - 820	260 - 820 260 - 220	260 - 650 260 - 590
Finishing	Continuous Light interrupted Heavy interrupted	<b>PSF</b>	<b>AH725</b> <b>T9115</b> <b>T9125</b>	.004 - .020	.002 - 0.30	160 - 590 160 - 590 160 - 500	160 - 590 160 - 590 160 - 500	130 - 500 130 - 500 130 - 400
Finishing to Medium cutting	Continuous Light interrupted Heavy interrupted	<b>PS</b>	<b>NS9530</b> <b>GT9530</b> <b>T9115</b> <b>T9125</b>	.012 - .079	.003 - .012	500 - 980 400 - 820 400 - 820	500 - 820 330 - 650 260 - 590	400 - 220 260 - 590 260 - 400
Finishing to Medium cutting	Continuous Light interrupted Heavy interrupted	<b>PSS</b>	<b>AH725</b> <b>T9115</b> <b>T9125</b>	.012 - .079	.003 - .012	160 - 590 160 - 590 160 - 500	160 - 590 160 - 590 160 - 500	130 - 500 130 - 500 130 - 400
Medium cutting	Continuous Light interrupted Heavy interrupted	<b>PM</b>	<b>NS9530</b> <b>T9115</b> <b>T9125</b>	.039 - .118	.006 - .012	500 - 980 400 - 820 400 - 820	500 - 820 330 - 650 260 - 590	400 - 220 260 - 590 260 - 400

Low carbon steels, Alloy steels: 1018, 8620 etc. Medium carbon steels, Alloy steels: 1035 - 1045 etc.  
High carbon steels, Alloy steels: 4140, 4340 etc.

# Selection System Positive Inserts

2

TAC Inserts

## **P** Steel

Precision finishing [  $a_p = \sim .020$  in ]

### Continuous

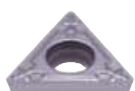
Basic



**01  
NS9530**

### Light interrupted

Basic



**01  
NS9530**

Fracture

**PSF  
AH725**

Finishing [  $a_p = .004 \sim .020$  in ]

### Continuous

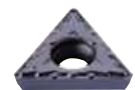
Basic



**PSF  
AH725**

### Light interrupted

Basic



**PSF  
AH725**

Fracture

**PS  
T9115**

### Heavy interrupted

Basic



**PSF  
AH725**

Fracture

**PS  
T9125**

Finishing to Medium cutting [  $a_p = .020 \sim .079$  in ]

### Continuous

Basic



**PS  
GT9530**

### Light interrupted

Basic



**PS  
T9115**

Fracture

**PS  
T9125**

Wear

**PS  
GT9530**

### Heavy interrupted

Basic



**PS  
T9125**

Fracture

**PM  
T9125**

Medium cutting [  $a_p = .039 \sim .118$  in ]

### Continuous

Basic



**PM  
T9115**

### Light interrupted

Basic



**PM  
T9115**

Fracture

**PM  
T9125**

### Heavy interrupted

Basic



**PM  
T9125**

Fracture

**24  
T9125**

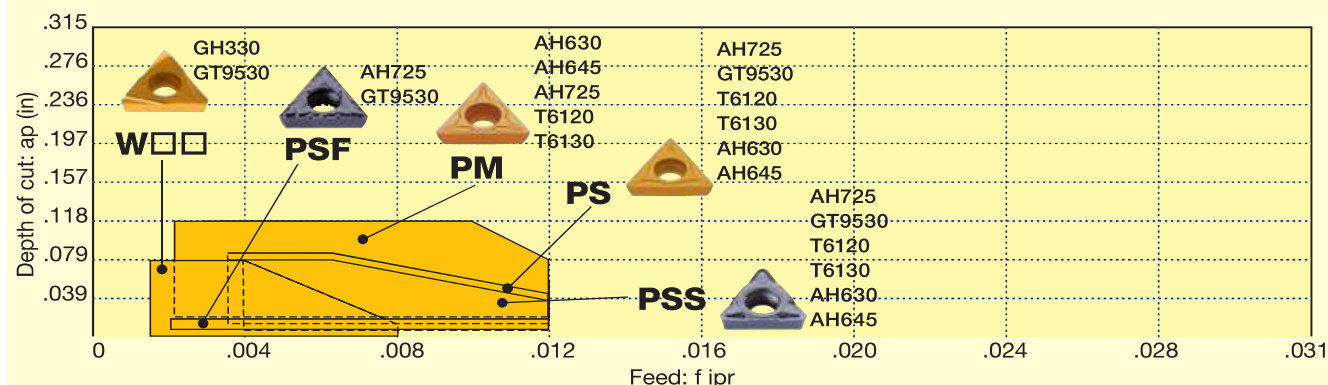
# Basic Chipbreakers Positive Inserts

## M Stainless Steel

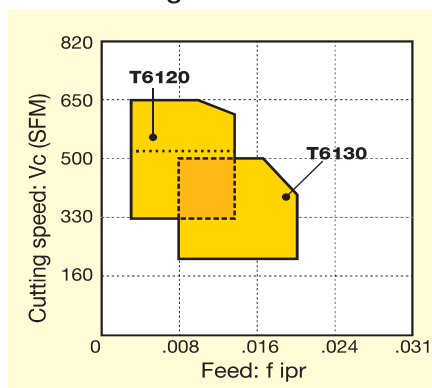
### Chipbreaker System for Turning (Positive Inserts)

2

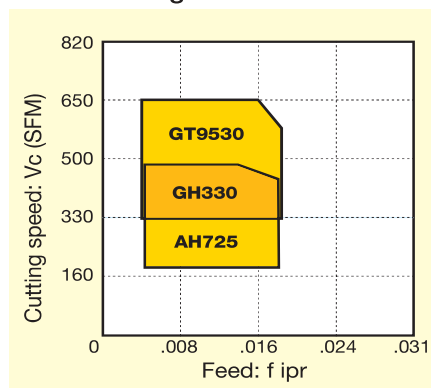
TAC Inserts



CVD coated grades



PVD coated grades



Chipbreaker	Appearance	Features
<b>W</b>		Designed to control the direction of chip flow and used for precision finish boring. Provides excellent chip evacuation which is important to attain a highly accurate bore.
<b>PSF</b>		Developed chipbreaker for finishing at low cutting depths. Optimal chip control due to pre-positioned chipbreaker element.

Chipbreaker	Appearance	Features
<b>PSS</b>		3-dimensional chipbreaker designed to have excellent chip control capability and low cutting force in finishing to medium cutting. Low cost, M-class positive insert used for high efficiency boring in a wide range of applications.
<b>PS</b>		3-dimensional chipbreaker designed to have excellent chip control capability and low cutting force in finishing to medium cutting. Low cost, M-class positive insert used for high efficiency boring in a wide range of applications.
<b>PM</b>		Developed chipbreaker for medium cutting. Excellent chip control due to wide, positive chip flow zone.

### Standard Cutting Conditions

Operation	Work condition	Chipbreaker	Grade	Depth of cut $a_p$ (in)	Feed $f$ ipr	Cutting speed $v_c$ (SFM) Stainless steels
Precision finishing	Continuous	<b>W</b>	<b>GH330</b> <b>GT9530</b>	.002 - .079	0.03 - .008	330-500
Finishing	Continuous	<b>PSF</b>	<b>AH725</b> <b>GT9530</b>	.004 - .020	.002 - .012	160-500
	Light interrupted Heavy interrupted					160-400
Finishing to Medium Cutting	Continuous	<b>PS</b>	<b>AH725</b> <b>GT9530</b> <b>T6120</b> <b>T6130</b>	.012 - .079	.003 - .012	330-650
	Light interrupted Heavy interrupted					170-230
Medium cutting	Continuous	<b>PSS</b>	<b>AH630</b> <b>AH645</b>	.012 - .079	.003 - .012	160-500
	Light interrupted Heavy interrupted					160-400
Medium cutting	Continuous	<b>PM</b>	<b>AH725</b> <b>AH630</b> <b>AH645</b> <b>T6120</b> <b>T6130</b>	.006 - .118	.006 - .012	330-650
	Light interrupted					160-330
	Heavy interrupted					

\*For CCMT0602 and DCMT0702 type inserts,  $a_p = .020-.060-.098$   
Stainless steels: 304, 316 etc.

# Selection System Positive Inserts

2

TAC Inserts

## M Stainless Steel

Precision finishing [  $a_p = \sim .020$  in ]

Continuous

Basic



W□□  
GH330

Light interrupted

Basic



W□□  
GH330

Finishing [  $a_p = .012 \sim .060$  in ]

Continuous

Basic



PSF  
AH725

Light interrupted

Basic



PSF  
AH725

Fracture

PS  
T6130

Wear

PS  
T6120

Heavy interrupted

Basic



PSF  
AH725

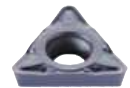
Fracture

PS  
T6130

Finishing to Medium cutting [  $a_p = .020 \sim .098$  in ]

Continuous

Basic



PSS  
AH725

Light interrupted

Basic



PS  
T6130

Fracture

PM  
T6130

Wear

PS  
T6120

Heavy interrupted

Basic



PS  
T6130

Fracture

PM  
T6130

Medium cutting [  $a_p = .039 \sim .118$  in ]

Continuous

Basic



PM  
T6130

Wear

PM  
T6120

Light interrupted

Basic



PM  
T6130

Fracture

24  
T6130

Wear

PM  
T6120

Heavy interrupted

Basic



PM  
T6130

Fracture

24  
T6130

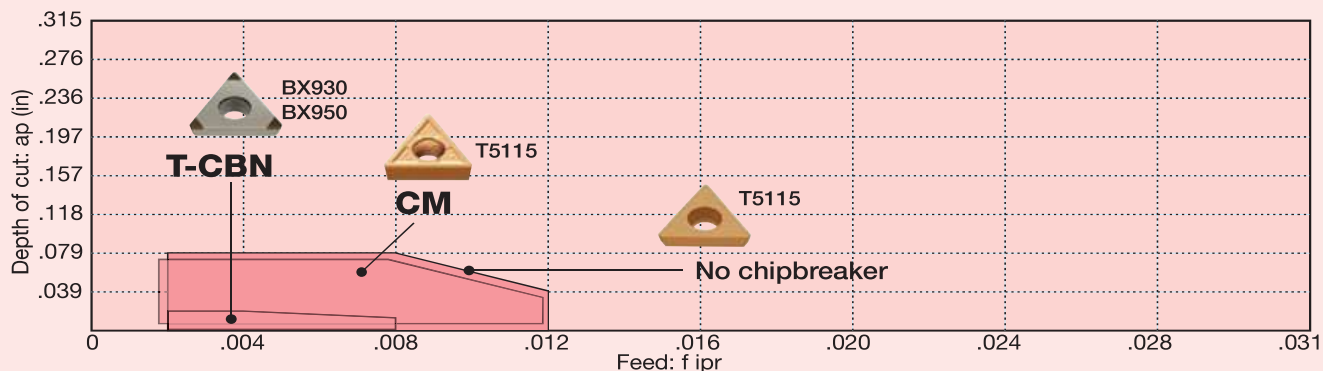
# Basic Chipbreakers Positive Inserts

## K Cast Iron

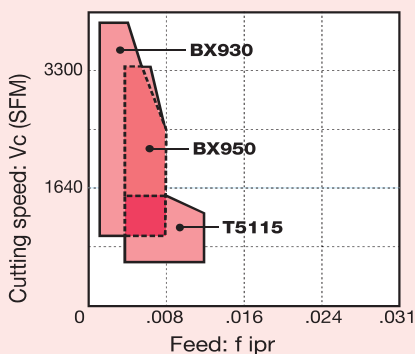
### Chipbreaker System for Turning (Positive Inserts)

2

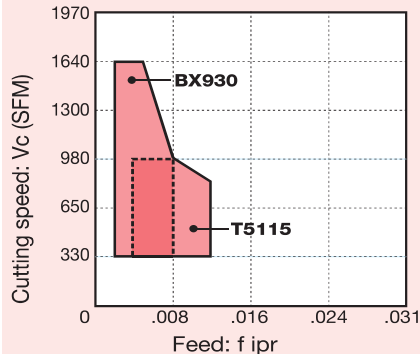
TAC Inserts



#### Grey cast irons



#### Ductile cast irons



Chipbreaker	Appearance	Features
No chip-breaker (T-CBN)		T-CBN inserts. Performs well in high speed finishing of cast iron.
No chip-breaker		Can cover a wide range of applications from finishing to roughing of cast irons. Excels in cutting edge strength.

Chipbreaker	Appearance	Features
CM		All round chipbreaker for general purpose cutting, provides low cutting forces and excellent performance in finishing to medium cutting.

### Standard Cutting Conditions

Operation	Work condition	Chip-breaker	Grade	Depth of cut $a_p$ (in)	Feed $f$ ipr	Cutting speed $v_c$ (SFM)	
						Grey cast irons	Ductile cast irons
Precision finishing	Continuous Light interrupted	No chipbreaker (T-CBN)	<b>BX930</b> <b>BX950</b>	.002 -.020	.002 -.008	980 -1200 980 -2630	330-1640 330-980
Finishing	Continuous Light interrupted Heavy interrupted	<b>CM</b>	<b>T5115</b>	.002 -.079	.002 -.012	500 -450 330 -980 330 -650	330-980 330-820 330-650
Medium cutting	Continuous Light interrupted Heavy interrupted	No chip breaker	<b>T5115</b>	.002 -.079	.002 -.012	500 -450 330 -980 330 -650	330-980 330-820 330-650

Grey cast irons: Class 25 - 40 etc.

Ductile cast irons: Class 65 - 45 - 12 etc.

# Selection System **Positive Inserts**

2

TAC Inserts

For high speed machining

Continuous

Light interrupted



**T-CBN  
BX930**



**T-CBN  
BX950**



**Cast Iron**

Finishing to Medium cutting [  $a_p = .020 \sim .118$  in ]

Continuous

Basic



**CM  
T5115**

Wear

**T-CBN  
BX930**

Light interrupted

Basic



**CM  
T5115**

Heavy interrupted

Basic



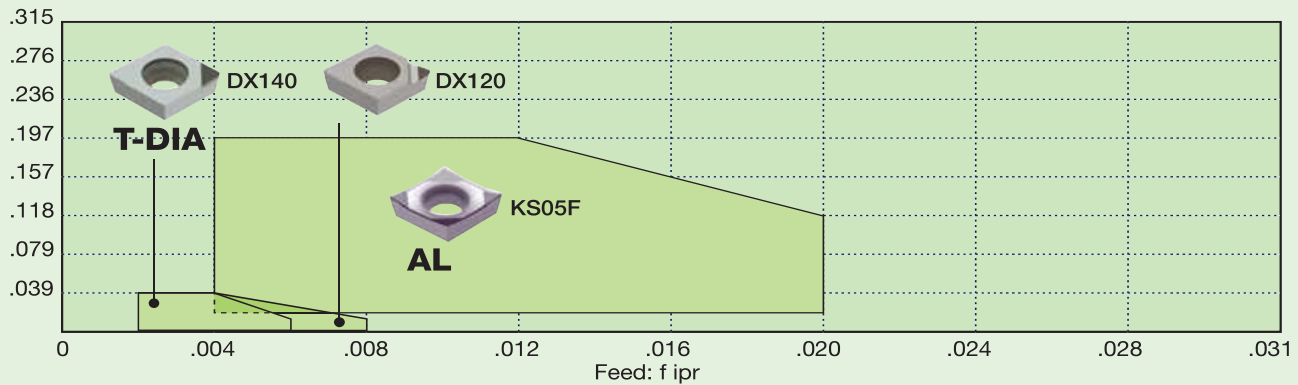
No  
chipbreaker  
**T5115**

# Basic Chipbreakers Positive Inserts

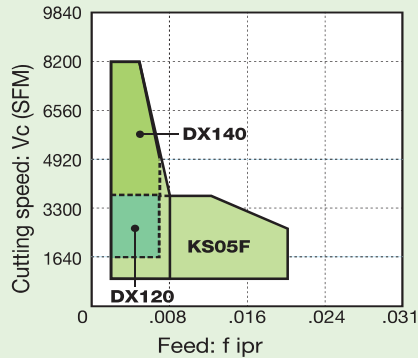
## N Non-ferrous Metal

### Chipbreaker System for Turning (Positive Inserts)

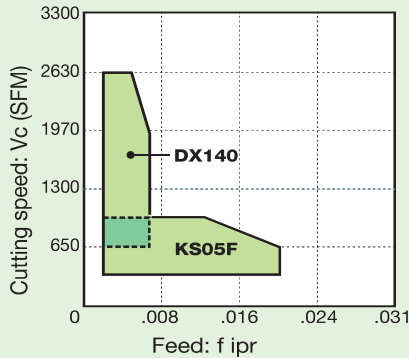
2  
TAC Inserts



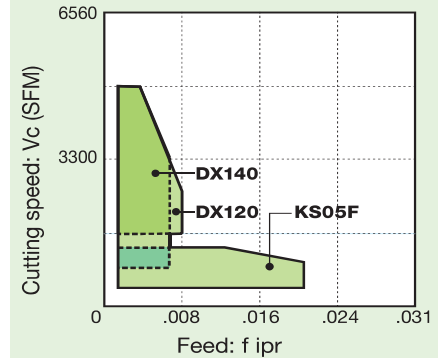
#### Aluminum alloys (Si < 12%)



#### Aluminum alloys (Si ≥ 12%)



#### Copper alloys



Chipbreaker	Appearance	Features
<b>No chip-breaker (T-DIA)</b>		T-DIA inserts. DX140 Performs well in high speed finishing of non-ferrous materials.
<b>AL</b>		Extremely sharp cutting edge. Polished surface. Excellent chip forming at high cutting feeds. Low power consumption.

Chipbreaker	Appearance	Features
<b>With chip-breaker (T-DIA)</b>		The wide chipbreaker width contributes to excellent chip control. DX120

### Standard Cutting Conditions

Operation	Work condition	Chip-breaker	Grade	Depth of cut $a_p$ (in)	Feed $f$ ipr	Cutting speed $V_c$ (SFM)		
						Aluminum alloys (Si < 12%)	Aluminum alloys (Si > 12%)	Copper Alloys
Precision finishing	Continuous Light interrupted	No chipbreaker	<b>DX140</b>	.002 -.039	.002 -.006	1640 -8200	1300 -2630	1640 -4920
		With chipbreaker	<b>DX120</b>	.002 -.039	.002 -.008	980 -8200		1640 -4920
Finishing	Continuous Light interrupted Heavy interrupted	No chipbreaker	<b>DX140</b>	.002 -.039	.002 -.006	1640 -8200	1300 -2630	1640 -4920
		(T-DIA)	<b>DX140</b>			980 -1800	1300 -1970	1300 -1200
		<b>AL</b>	<b>KS05F</b>	.020 -.197	.004 -.020	330 -1970	330 -650	
Medium cutting	Continuous Light interrupted Heavy interrupted	<b>AL</b>	<b>KS05F</b>			330 -1200	330 -980	330 -980
			<b>KS05F</b>	.020 -.197	.004 -.020	330 -900	330 -650	330 -650
			<b>KS05F</b>			330 -1970	330 -650	

## N Non-ferrous Metal

Precision finishing [  $a_p = \sim .020$  in ]

### Continuous

Basic



With chipbreaker  
**DX120**



**T-DIA  
DX140**

### Light interrupted

Basic



With chipbreaker  
**DX120**



**T-DIA  
DX140**

Finishing [  $a_p = .020 \sim .079$  in ]

### Continuous

Basic



**T-DIA  
DX140**



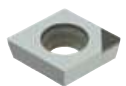
**T-DIA  
DX160**



With chipbreaker  
**T-DIA  
DX120**

### Light interrupted

Basic



**T-DIA  
DX140**



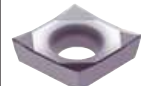
**AL  
KS05F**



**T-DIA  
DX160**

### Heavy interrupted

Basic

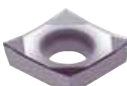


**AL  
KS05F**

Medium cutting [  $a_p = .039 \sim .197$  in ]

### Continuous

Basic



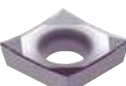
**AL  
KS05F**



With chipbreaker  
**T-DIA  
DX120**

### Light interrupted

Basic



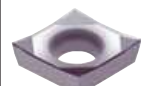
**AL  
KS05F**



**T-DIA  
DX140**

### Heavy interrupted

Basic



**AL  
KS05F**



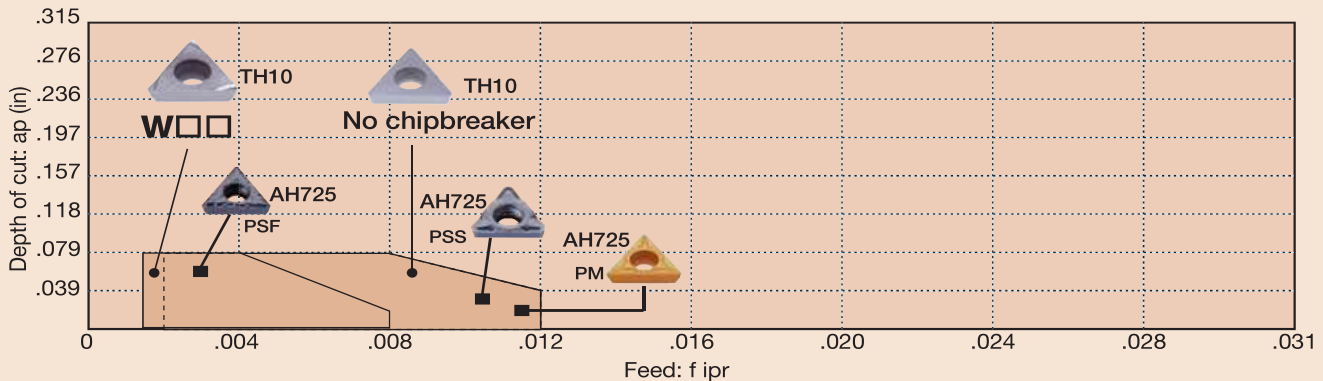
# Basic Chipbreakers Positive Inserts

## **S** Superalloys and titanium

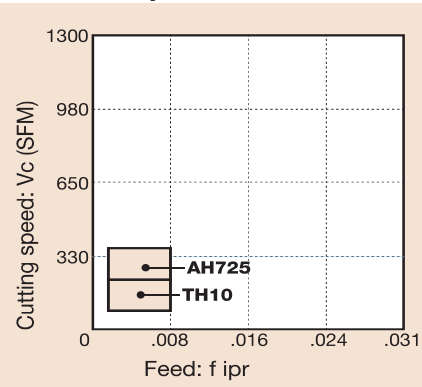
2

TAC Inserts

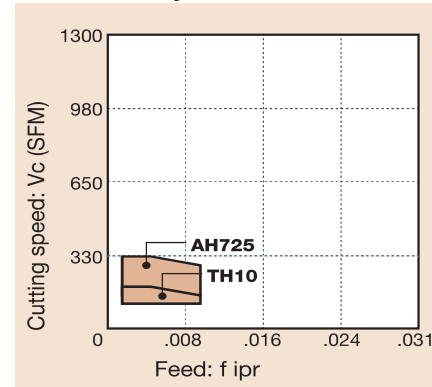
### ● Chipbreaker System for Turning (Positive Inserts)



#### Ni-base alloys



#### Titanium alloys



Chipbreaker	Appearance	Features
<b>W□□</b>		Designed to control the direction of chip flow and used for precision-finish boring. Provides excellent chip evacuation which is important to attain a highly accurate bore.
<b>No chip-breaker</b>		Can cover a wide range of applications from finishing to roughing. Excels in cutting edge strength.

Chipbreaker	Appearance	Features
<b>PSF</b>		Excellent chip control in light cutting conditions.
<b>PSS</b>		Low cutting force at medium depth of cuts.
<b>PM</b>		Great edge strength in high impact applications.

### ● Standard Cutting Conditions

Operation	Work condition	Chip-breaker	Grade	Depth of cut $a_p$ (in)	Feed $f$ ipr	Cutting speed $V_c$ (SFM)	
						Hardened steels	Pre-hardened steels
Precision finishing	Continuous Light interrupted	<b>W□□</b>	<b>TH10</b>	.002-.080	.001-.008	20-150	30-150
Finishing	Continuous Light interrupted	No chipbreaker	<b>TH10</b>	.002-.080	.002-.012	20-150	30-150
Finishing	Continuous Light interrupted	PSF	<b>AH725</b>	.005-.015	.002-.008	80-330	100-330
Medium	Continuous Light interrupted	PSS	<b>AH725</b>	.020-.060	.003-.008	80-330	100-330
Heavy	Continuous Light interrupted	PM	<b>AH725</b>	.025-.080	.004-.012	80-330	100-330

Ni-base alloys: INCONEL718 etc.  
Titanium alloys: Ti - 6Al - 4V etc.

## S Superalloys and titanium

Precision finishing [  $a_p = \sim .020$  in ]

Continuous



T-CBN  
BX950

Light interrupted



T-CBN  
BX950

Finishing [  $a_p = .020 \sim .079$  in ]

Continuous



Light interrupted



No chipbreaker  
TH10

Heavy interrupted



No chipbreaker  
TH10

Medium [  $a_p = .020 \sim .100$  in ]

Continuous



Light interrupted



PM

Heavy interrupted



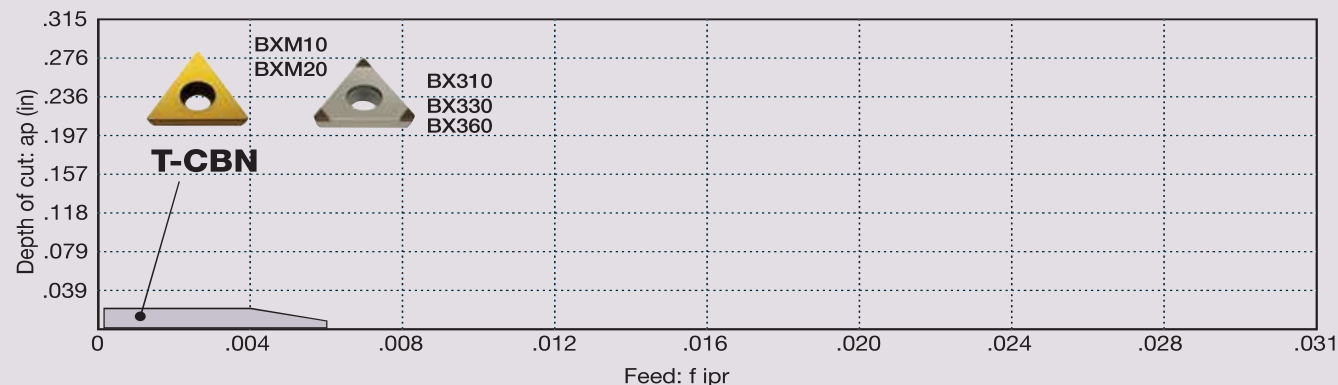
AH645

# Basic Chipbreakers Positive Inserts

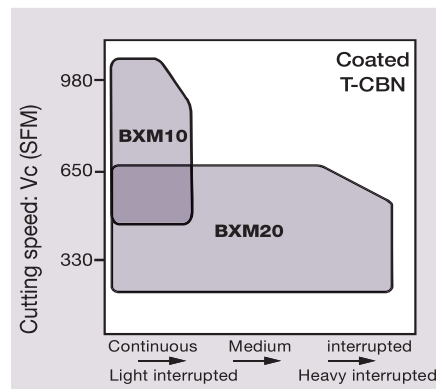
## H Hard Materials

### Chipbreaker System for Turning (Positive Inserts)

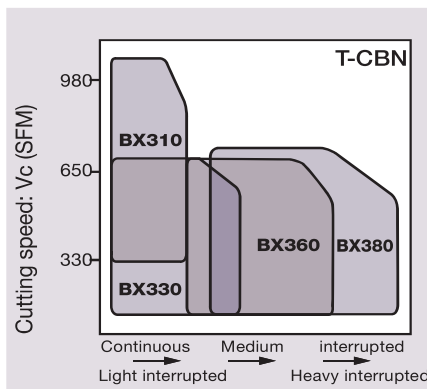
2  
TAC Inserts




Coated T-CBN



T-CBN



Chipbreaker	Appearance	Features
No chip-breaker (T-CBN)		T-CBN inserts. Performs well in finishing of hardened steel.

### Standard Cutting Conditions

Operation	Work condition	Chip-breaker	Grade	Depth of cut $a_p$ (in)	Feed $f$ ipr	Cutting speed $v_c$ (SFM)
						Hardened steels Pre-hardened steels
Precision finishing	Continuous Light	No chip-breaker (T-CBN)	<b>BXM10</b> <b>BXM20</b>	.002 -.010	.002 -.006	350-650
Finishing	Continuous - interrupted	No chip-breaker (T-CBN)	<b>BXM20</b>	.002 -.007	.002 .007	350-550

Hardened steels, Pre-hardened steels: A980 etc.

\*Note: It is highly recommended to take .005" or less per side and dry when cutting an interruption.

## **H** Hard Materials

2

TAC Inserts

Finishing [  $a_p = \sim .012$  in ]

Continuous

Basic



**T-CBN  
BXM20**



**T-CBN  
BXM10**

Light interrupted

Basic



**T-CBN  
BXM20**



**T-CBN  
BXM10**

Finishing [  $a_p = \sim .012$  in ]

Continuous

Basic



**T-CBN  
BXM20**



**T-CBN  
BXM10**

Light interrupted

Basic



**T-CBN  
BXM20**



**T-CBN  
BXM10**

Medium ~ Heavy interrupted

Basic



**T-CBN  
BXM20**