

BX470 / BX480

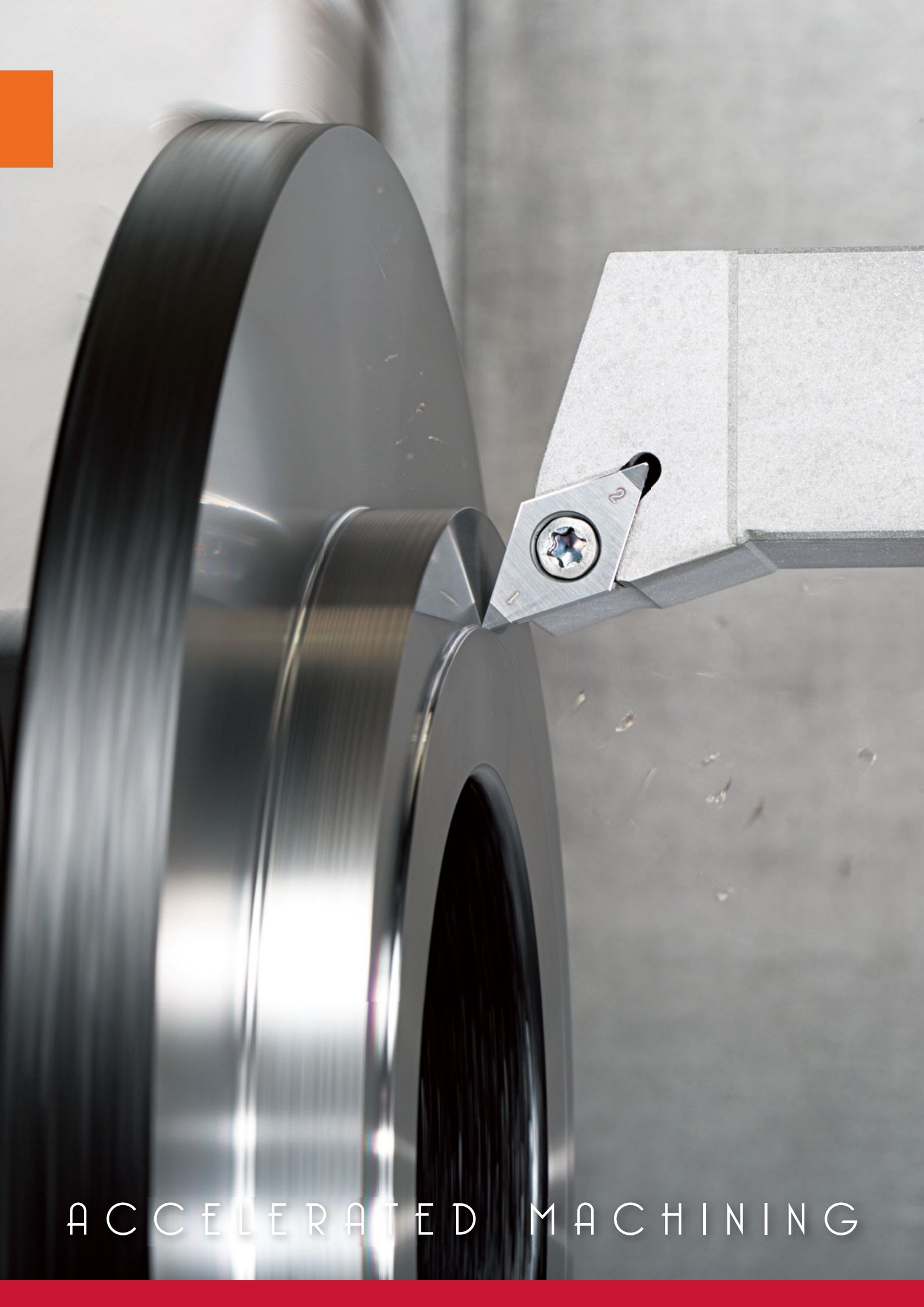
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Tungaloy Report No. 362-G

Now available in **positive inserts** for wider application range of sintered powder metals and cast iron parts



INDUSTRY 4.0
FEED the SPEED!



ACCELERATED MACHINING



Ideal Grade for Sintered Powder Metals and High Speed Finishing of Cast Iron Parts

Exceptional reliability and long tool life in machining sintered powder metals and cast iron at high speed

BX470: fine-grained, high cBN content grade

Excellent edge quality → reduces burr formation in powder metal parts
provides superior surface finishing in sintered powder metal parts

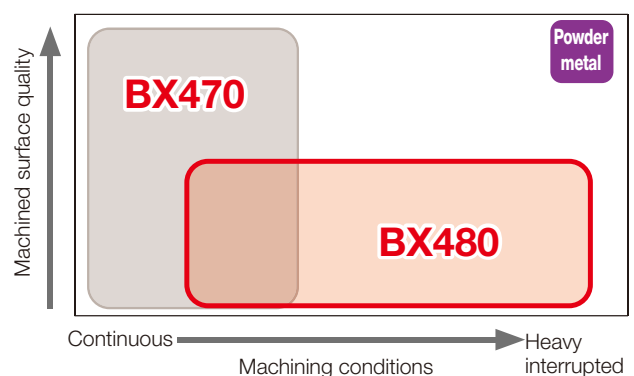
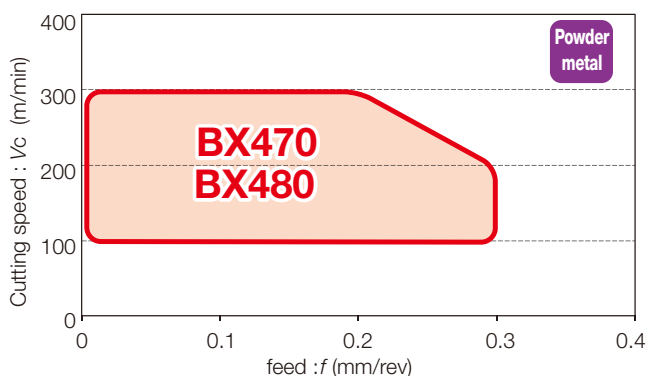
BX480: high cBN content grade with well-sintered cBN grains

Fracture resistance → ensures stability during interrupted cutting of sintered powder metals

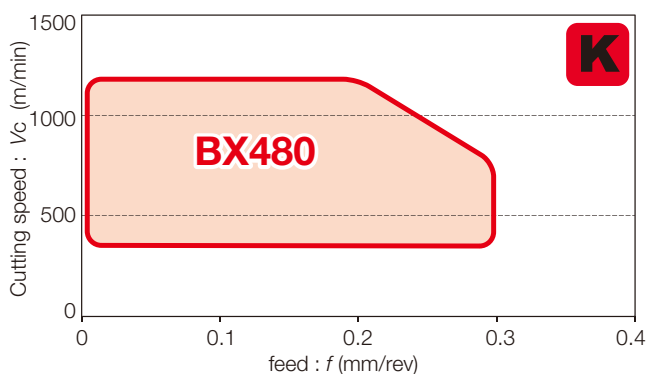
High thermal conductivity → ideal for high speed machining of cast iron

APPLICATION

Grade Application Range for Turning Sintered Powder Metal



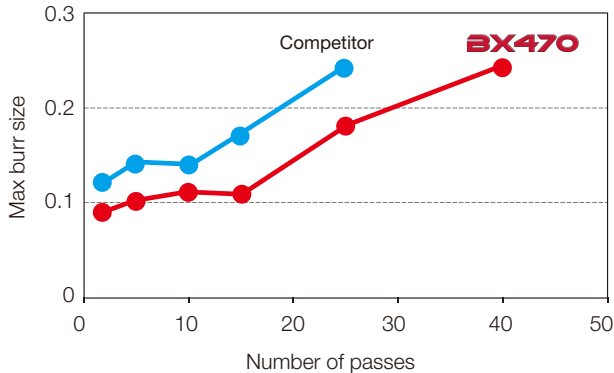
Grade Application Range for Turning Gray Cast Iron



CUTTING PERFORMANCE

BX470 Turning, Sintered Powder Metal

Reduces burr formation



Insert : CNGA120404
 Workpiece material : Ferrous powder metal (HRc 61)
 Cutting speed : $V_c = 200$ m/min
 Feed : $f = 0.08$ mm/rev
 Depth of cut : $a_p = 0.1$ mm
 Coolant : Wet

Powder metal

BX470 provided high edge quality and reduced burr formation

After 25 passes



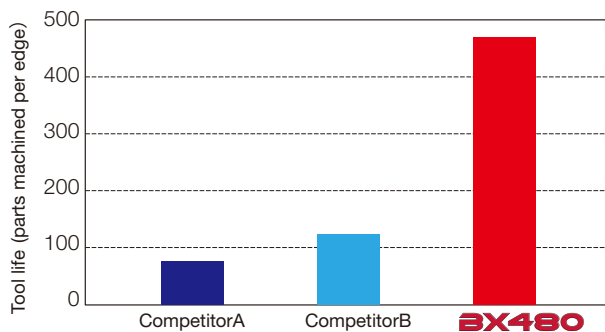
BX470



Competitor

BX480 Turning, Sintered Powder Metal

Machining stability in interrupted cuts



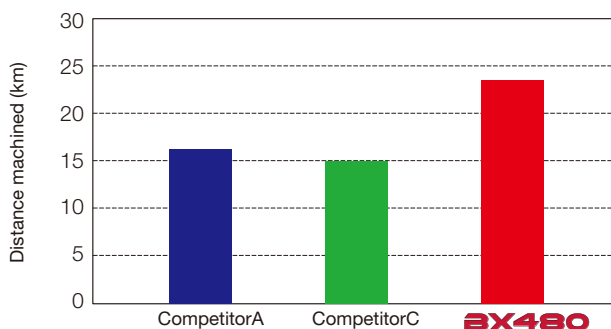
Insert : CNGA120412
 Workpiece material : Ferrous powder metal (HRc 61)
 Cutting speed : $V_c = 450$ m/min
 Feed : $f = 0.15$ mm/rev
 Depth of cut : $a_p = 0.2$ mm
 Coolant : Wet

Powder metal

BX480 exhibited excellent stability in machining ferrous powder metal

BX480 Finishing, Cast Iron

Machining stability in interrupted cuts



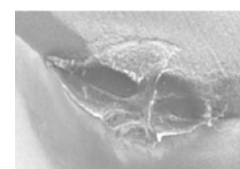
Insert : CNGA120408
 Workpiece material : Gray cast iron (GG25/FC250)
 Cutting speed : $V_c = 1,100$ m/min
 Feed : $f = 0.15$ mm/rev
 Depth of cut : $a_p = 0.2$ mm
 Coolant : Wet

K

BX480 ensures high fracture resistance in high speed machining of gray cast iron

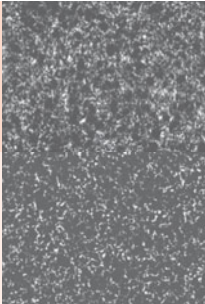


BX480



CompetitorA

GRADES

Application	Grade	Microstructure	Hardness (Hv)	T.R.S. (GPa)	Grade property
	BX470		4100 - 4300	1.90 - 2.10	Fine grained PcBN grade most suited for ferrous powder metal. Excellent edge quality reduces burr formation
	BX480		4100 - 4300	1.90 - 2.10	High cBN content PcBN grade with well-sintered medium-sized cBN grains. Suited for interrupted cuts of ferrous powder metal and high speed turning of gray cast iron

STANDARD CUTTING CONDITIONS

Application	Grade	Cutting speed Vc (m/min)	Depth of cut ap (mm)	Feed f (mm/rev)
	BX470	100 - 300	0.05 - 0.50	0.05 - 0.30
	BX480	100 - 350	0.05 - 0.50	0.05 - 0.30
	BX480	300 - 1,200	0.05 - 0.50	0.05 - 0.30

Designation system for honing

Example:

Honing width: 0.13 mm

Honing angle: -25°

Tough honing



Shape

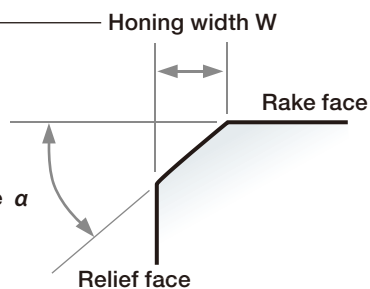
Honing width (W)

Honing angle (α)

T ... Chamfered honing

S ... Tough honing

F ... Sharp edge

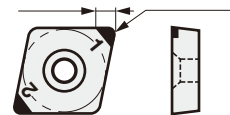


- : Continuous cutting
- ◐ : Light interrupted cutting
- ⊕ : Heavy interrupted cutting

Standard honing specifications		
Shape	Grade	
Negative insert	T01315	S01325
Positive insert	T01315	S00515

- : Continuous cutting
- ◐ : Light interrupted cutting
- ⌘ : Heavy interrupted cutting

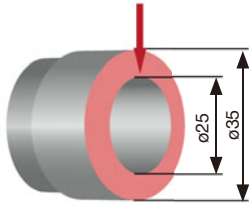
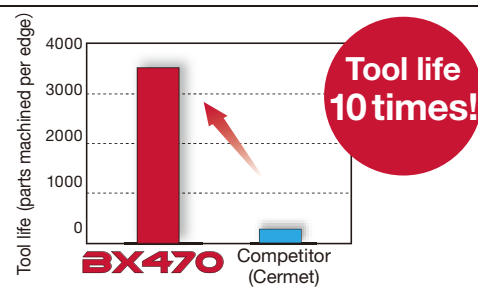
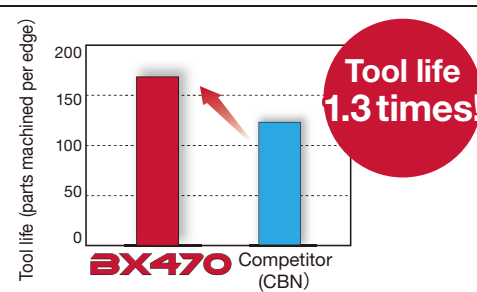
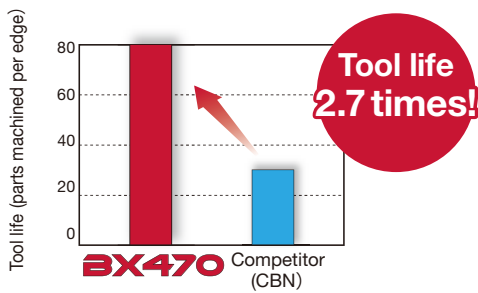
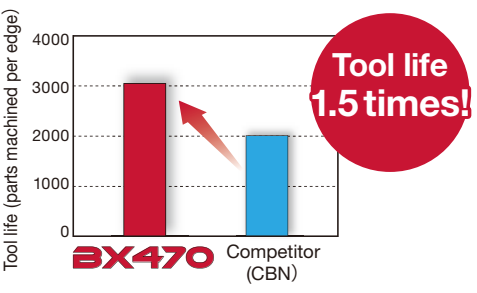
P	Steel												
M	Stainless												
K	Cast iron		●	⊠									
N	Non-ferrous												
S	Superalloys												
H	Hard materials												
	Powder metal	●	C	●	⊠								



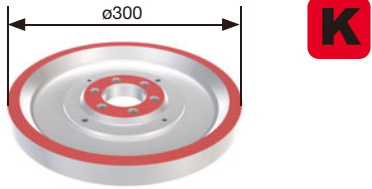
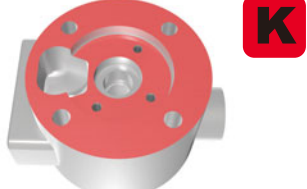
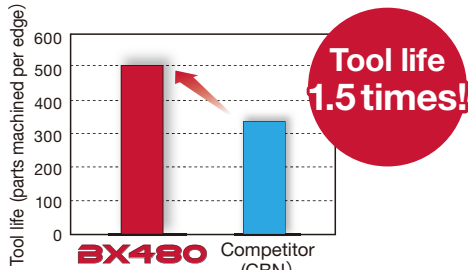
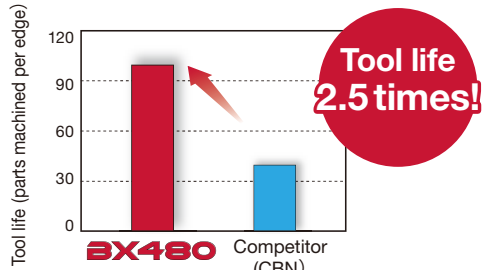
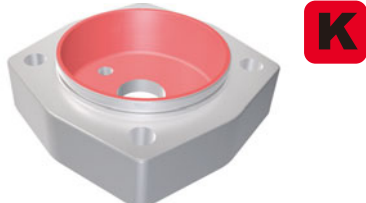
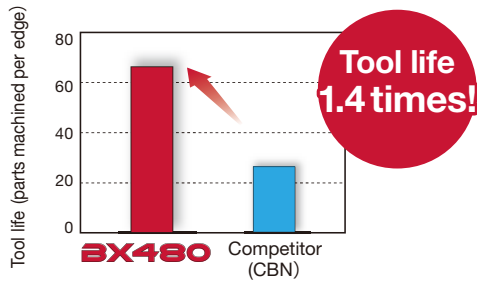
● : Line-up
★ : New product

Shape \ Grade	BX470	BX480
	T01315	S01325
Positive insert	T01315	S00515

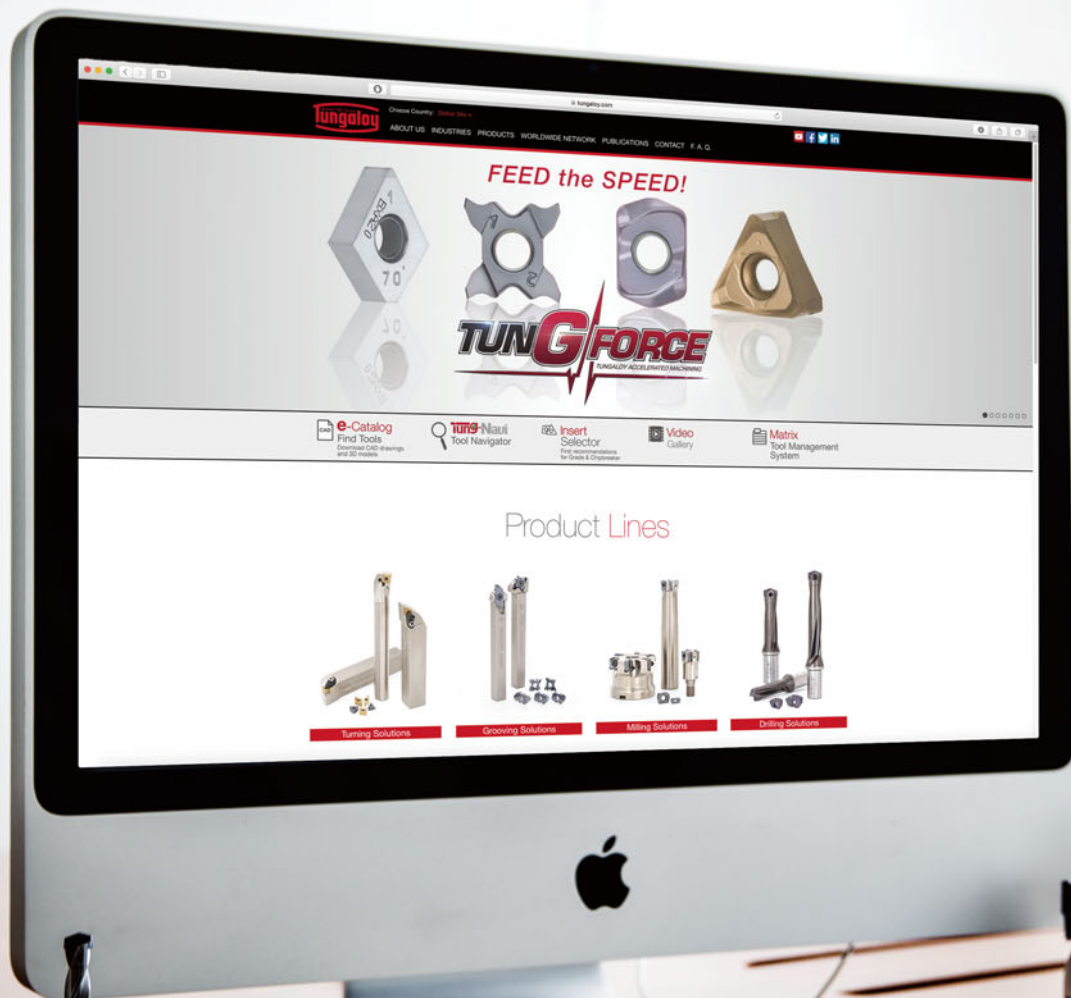
PRACTICAL EXAMPLES

Workpiece type		Ferrous sintered metals	Housing gear (automotive part)
Holder		ATQNR2525M16-A	PTFNR2525M3
Insert		3QP-TNGA160404F	3QP-TNGA160404
Grade		BX470	BX470
Workpiece material		Ferrous powder metal	Ferrous powder metal
		 Powder metal	 Powder metal
Cutting conditions	Cutting speed : V_c (m/min)	300	140
	Feed : f (mm/rev)	0.1	0.08
	Depth of cut : a_p (mm)	0.2	0.1
	Method of machining	Facing	Facing
	Coolant	Wet	Wet
Results		 Tool life 10 times! Cutting speed was improved by 1.5 times over a cermet insert. Tool life was improved over 10 times.	 Tool life 1.3 times! BX470 creates little burrs on interrupted parts, extending tool life by 1.3 times.
Workpiece type		Sleeve (automotive part)	Rocker arm (automotive part)
Holder		E20S-SDQCR11-D250	JSDFCL1212H07
Insert		2QP-DCGW11T304	2QP-DCGW11T304F
Grade		BX470	BX470
Workpiece material		Ferrous powder metal (Hv700)	Ferrous powder metal
		 Powder metal	 Powder metal
Cutting conditions	Cutting speed : V_c (m/min)	384	350
	Feed : f (mm/rev)	0.1	0.1
	Depth of cut : a_p (mm)	0.1	0.1
	Method of machining	Facing	Facing
	Coolant	Dry	Dry
Results		 Tool life 2.7 times! BX470 creates little burrs on the exits, improving tool life by 2.7 times.	 Tool life 1.5 times! BX470 creates little burrs on the exits with improved tool life of 1.5 times.

PRACTICAL EXAMPLES

Workpiece type		FC250 (ISO250)	Turbo bearing housing (automotive part)
Holder		ACCNR2525M12-A	S25S-SDQCR11-D300
Insert		2QP-CNGA120408	2QP-DCGW11T304
Grade		BX480	BX480
Workpiece material		FC250 / 250	FC250 / 250
			
Cutting conditions	Cutting speed : Vc (m/min)	600	550
	Feed : f (mm/rev)	0.04	0.1
	Depth of cut : ap (mm)	0.12	0.05
	Method of machining	Facing (partially interrupted)	Facing
	Coolant	Wet	Wet
Results		 BX480 Competitor (CBN) BX480 improved tool life by 1.5 times over competitor's grade in interrupted cuts of gray cast iron.	 BX480 Competitor (CBN) BX480 extended tool life by 2.5 times thanks to its fracture resistance.
Workpiece type		Housing (heavy equipment part)	
Holder		A40T-ADQNL15-D500	
Insert		2QP-DNGA150404	
Grade		BX480	
Workpiece material		FCV300/CGI 300	
			
Cutting conditions	Cutting speed : Vc (m/min)	150	
	Feed : f (mm/rev)	0.08	
	Depth of cut : ap (mm)	0.2	
	Method of machining	Internal and face turning	
	Coolant	Wet	
Results		 BX480 Competitor (CBN) BX480 extended tool life by 1.4 times thanks to the superior fracture resistance.	

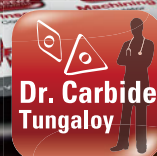
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