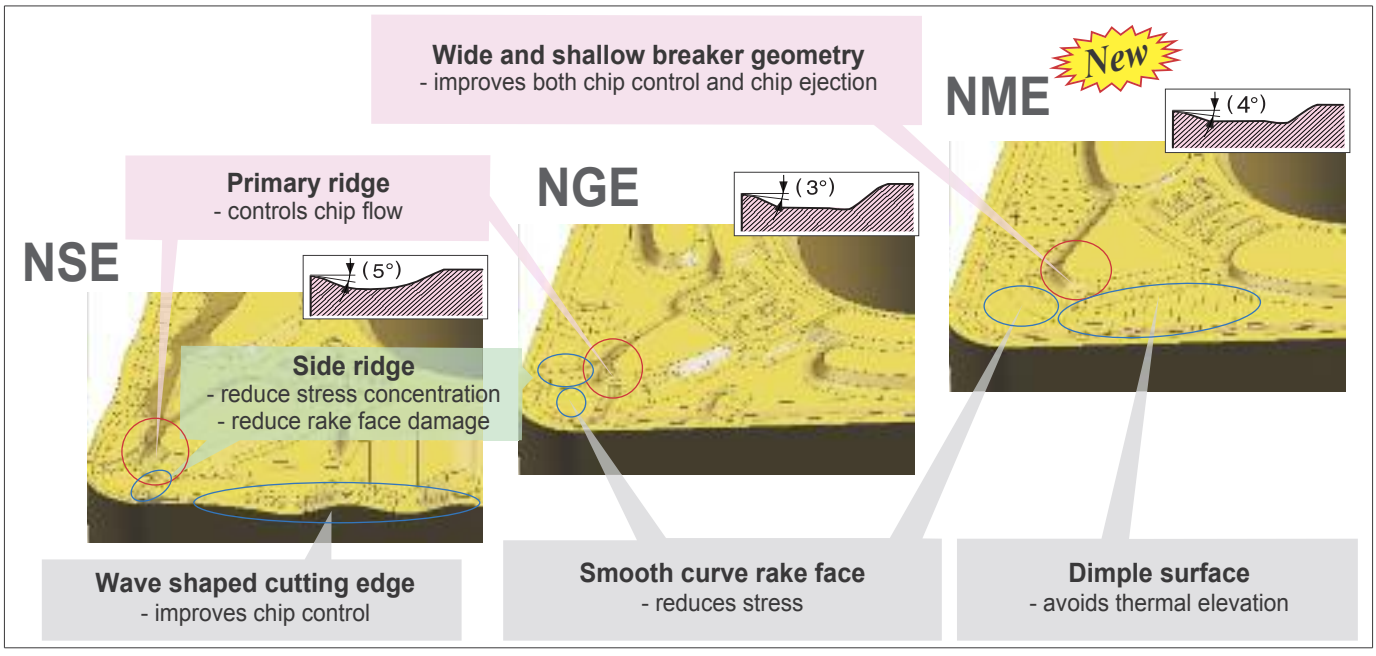
High Feed Chipbreakers

NSE / NGE / NME

The ability to control chip size and chip direction is vital for efficient production, unmanned machining and protection of the tool / workpiece.

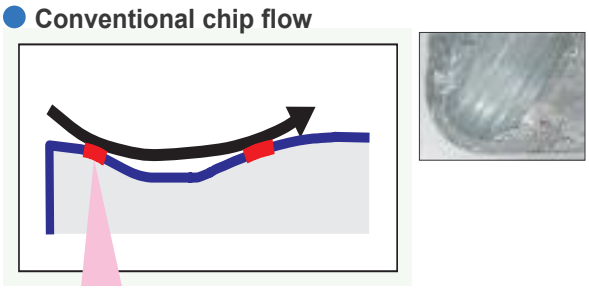
The unique design of three new chipbreakers **NSE** for finishing applications, **NGE** for general purpose turning and **NME** for roughing enables smooth chip flow across a wide range of feed rates even at elevated cutting speeds and increased depths of cut.

Features



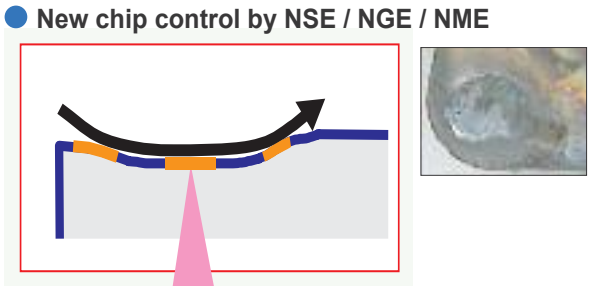
Chip Control

Conventional chip flow



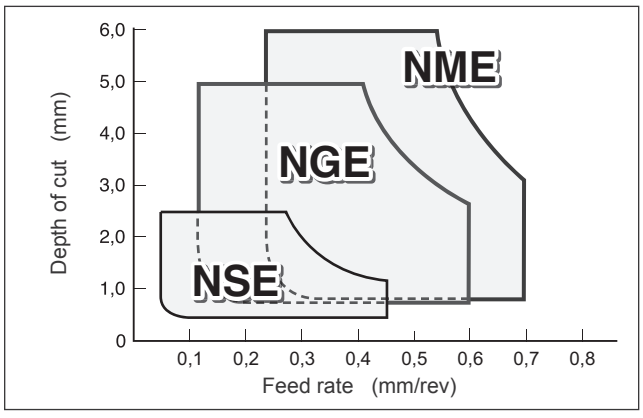
Limited chip contact area increases stress and causes insert damage

New chip control by NSE / NGE / NME



Smooth flow improves chip direction and shape.

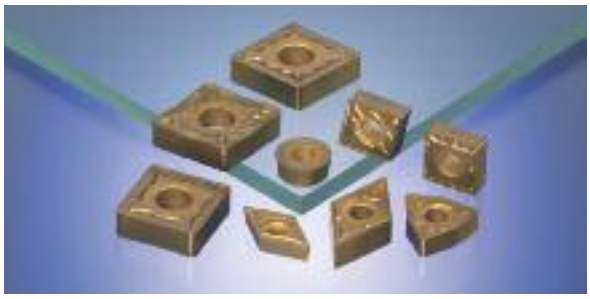
Application Range



High feed turning at high speeds with NGE type chipbreaker
(Coated grade: AC810P)

AC810P / AC820P / AC830P

Recommended Cutting Conditions



■ Recommended Cutting Conditions

(Min.- **Optimum** - Max.)

● Low Carbon Steel (Below HB180)

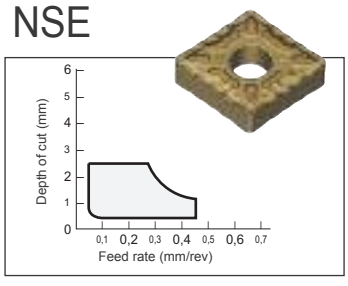
Insert Specification and Chipbreaker		Recommended Cutting Conditions				
		AC810P	AC820P	AC830P	f	d_{oc}
		Vc (m/min)			(mm/rev)	(mm)
CNnn12.. DNnn15.. SNnn12.. TNnn16.. WNnn08..	NLU NSU	**290** (170-430)	**250** (150-350)	**200** (120-300)	**0,2** (0,1-0,4)	**1,3** (0,5-2)
	NSE				**0,3** (0,1-0,45)	
	NGU NUX	**290** (170-430)	**230** (150-300)	**200** (120-300)	**0,3** (0,1-0,45)	**2,2** (0,8-5)
	NGE				**0,4** (0,1-0,6)	
	NMU	**260** (140-360)	**200** (130-280)	**180** (100-250)	**0,35** (0,2-0,6)	**3** (1,8-6)
	NME				**0,45** (0,2-0,7)	**3** (1-6)
	NMP NHG	**220** (140-290)	**180** (100-260)	**150** (100-200)	**0,4** (0,35-0,8)	**4,5** (3-8)
CNnn16.. SNnn15..	NGU NUX	**260** (140-360)	**200** (130-280)	**180** (100-250)	**0,3** (0,15-0,45)	**3,5** (0,8-5)
	NGE				**0,4** (0,1-0,6)	
	NMU	**220** (140-290)	**180** (100-260)	**150** (100-200)	**0,4** (0,2-0,6)	**4,5** (1,8-6)
	NME				**0,45** (0,2-0,7)	**4,5** (1,5-7)
	NMP NHG	**190** (120-260)	**160** (80-240)	**130** (80-180)	**0,6** (0,35-0,8)	**5** (3-8)
CNnn19.. DNnn19.. SNnn19.. TNnn22..	NMU	**220** (140-290)	**180** (100-260)	**150** (100-200)	**0,4** (0,2-0,6)	**5** (1,8-6)
	NME				**0,45** (0,2-0,7)	**4,5** (2-8)
	NMP NHG	**190** (120-260)	**160** (80-240)	**130** (80-180)	**0,4** (0,35-0,8)	**6,5** (3-9)

● Carbon and Alloy Steel (Above HB180)

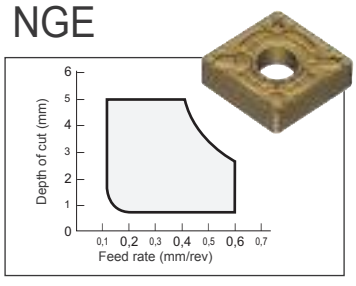
Insert Specification and Chipbreaker		Recommended Cutting Conditions				
		AC810P	AC820P	AC830P	f	d_{oc}
		Vc (m/min)			(mm/rev)	(mm)
CNnn12.. DNnn15.. SNnn12.. TNnn16.. WNnn08..	NLU NSU	**260** (170-360)	**210** (120-300)	**180** (120-250)	**0,2** (0,1-0,4)	**1,3** (0,5-2)
	NSE				**0,3** (0,1-0,45)	
	NGU NUX	**250** (150-350)	**180** (100-270)	**150** (100-200)	**0,3** (0,1-0,45)	**2,2** (0,8-5)
	NGE				**0,4** (0,1-0,6)	
	NMU	**230** (130-330)	**150** (80-230)	**130** (80-180)	**0,35** (0,2-0,6)	**3** (1,8-6)
	NME				**0,45** (0,2-0,7)	**3** (1-6)
	NMP NHG	**140** (100-230)	**130** (60-200)	**100** (70-160)	**0,4** (0,35-0,8)	**4,5** (3-8)
CNnn16.. SNnn15..	NGU NUX	**190** (130-250)	**160** (100-230)	**130** (90-170)	**0,3** (0,15-0,45)	**3,5** (0,8-5)
	NGE				**0,4** (0,1-0,6)	
	NMU	**160** (100-220)	**140** (80-210)	**110** (70-150)	**0,4** (0,2-0,6)	**4,5** (1,8-6)
	NME				**0,45** (0,2-0,7)	**4,5** (1,5-7)
	NMP NHG	**140** (90-200)	**120** (70-180)	**100** (60-140)	**0,6** (0,35-0,8)	**5** (3-8)
CNnn19.. DNnn19.. SNnn19.. TNnn22..	NMU	**160** (100-220)	**140** (80-210)	**110** (70-150)	**0,4** (0,2-0,6)	**5** (1,8-6)
	NME				**0,45** (0,2-0,7)	**4,5** (2-8)
	NMP NHG	**140** (90-200)	**120** (70-180)	**100** (60-140)	**0,4** (0,35-0,8)	**6,5** (3-9)

■ High feed chipbreakers improve productivity

NSE

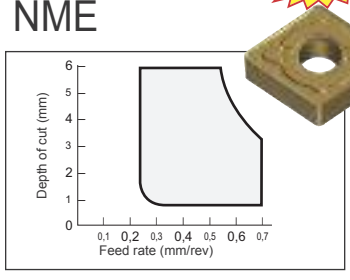


NGE



NME

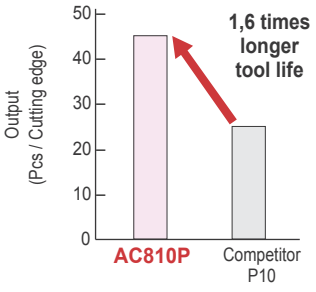
New



AC810P

1 Ring / 100Cr6

Insert: CNMG 1606016 NMU
Conditions: v_c=280m/min, f=0,35mm/rev, d_{oc}=1,0mm, Wet

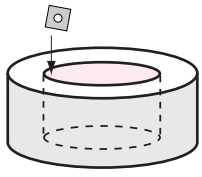


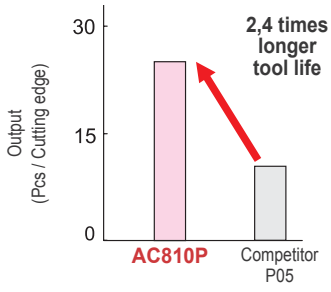
Longer tool life due to high wear resistance

Under exacting test conditions AC810P showed outstanding flank wear resistance and increased tool life by 60% when compared with a leading competitors brand.

1 Coupling / Ck45

Insert: SNMG 150616 NMU
Conditions: v_c=175m/min, f=0,66mm/rev, d_{oc}=2,6mm, Wet





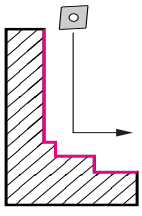
Higher productivity - Improved tool life

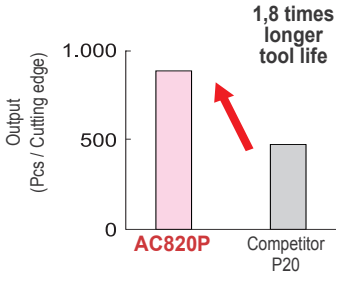
Using AC810P at high feed machining against a competitors P05 grade - tool life improved by 140% due to improved resistance to wear.

AC820P

1 Turbine Hub / 15CrMo5

Insert: CNMG 120408 NGU
Conditions: v_c=200m/min, f=0,25mm/rev, d_{oc}=2,0mm, Wet



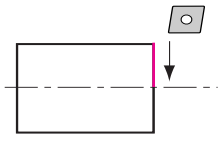


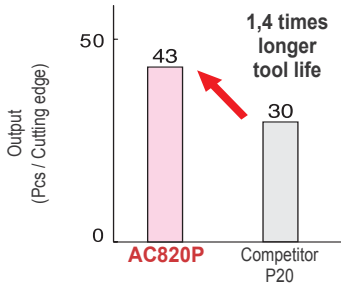
Excellent surface finish on low alloy steel

Using the same cutting data as a competitors P20 grade, we increased tool life by 80%.

1 Transmission parts / Ck50

Insert: CNMG 120408 NSE
Conditions: v_c=220m/min, f=0,3mm/rev, d_{oc}=0,2mm, Dry





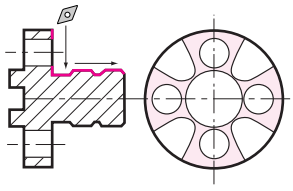
Good chip control and increase tool life

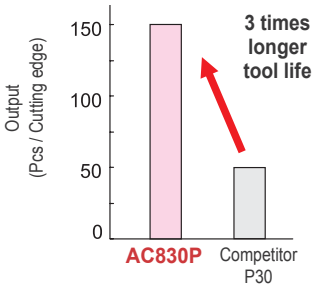
When rake face damage diminished using AC820P against a competitors P20 grade - tool life improved by 40%.

AC830P

1 Hub / Ck55

Insert: DNMG 150412 NUX
Conditions: v_c=150m/min, f=0,25mm/rev, d_{oc}=1,0mm, Wet



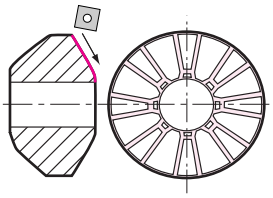


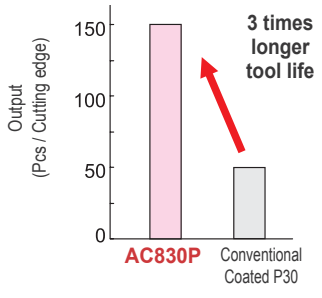
Continuous cutting with heavy interruptions

When machining a component with continuous and interruptions cuts AC830P compared with a P30 competitor's grade increased tool life by 200%.

1 Pinion Gear / 20Cr4

Insert: SNMG 120412 NUX
Conditions: v_c=170m/min, f=0,35mm/rev, d_{oc}=1,5mm, Wet





Tool life increase on heavy interrupted cuts

It is reasonable to assume some edge condition failure on heavily interrupted cuts but against a competitor's tool at the same cutting speeds the tool life of AC830P increased by 200%.