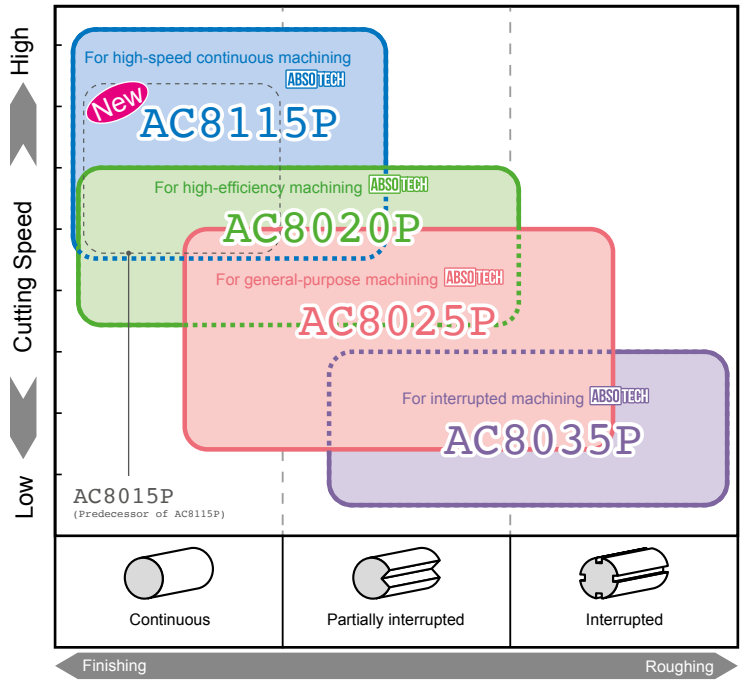
Application Range



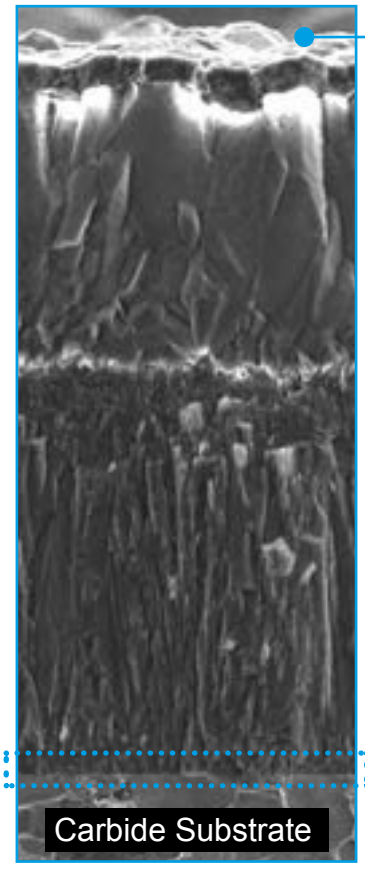
AC8115P New — CVD ABSOTECH
Amazing Wear Resistance
Crater wear resistance
1.5x against conventional tools

AC8020P — CVD ABSOTECH
Standout Chipping Resistance
Chipping resistance in high-efficiency machining
2.5x against conventional tools

AC8025P — CVD ABSOTECH
Absolute Reliability
Adhesion resistance/chipping resistance
2x against conventional tools

AC8035P — CVD ABSOTECH
Exceptional Stability
Fracture resistance in interrupted machining
2x against conventional tools

Features of AC8020P/AC8025P/AC8035P



Special Surface Treatment

Chipping resistance and adhesion resistance are significantly improved by special surface treatments applied to suit the application

High Strength Alumina Layer

Significantly improves the coating strength by controlling crystal growth direction

High Hardness Fine grained TiCN Layer

Significantly improves the coating hardness by using a fine and uniform crystal structure

High Adhesion Technology

Significantly improves adhesion strength through a smooth interface between the coating and carbide substrate

Prestressed | Gold-colored Surface

Chipping Suppressed / Visibility Improved

Smoothing

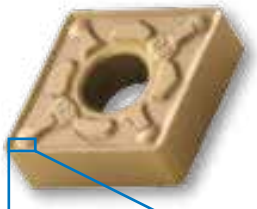
Adhesion/ Chipping Suppressed

Prestressed

Fracture Suppressed

Features of AC8115P

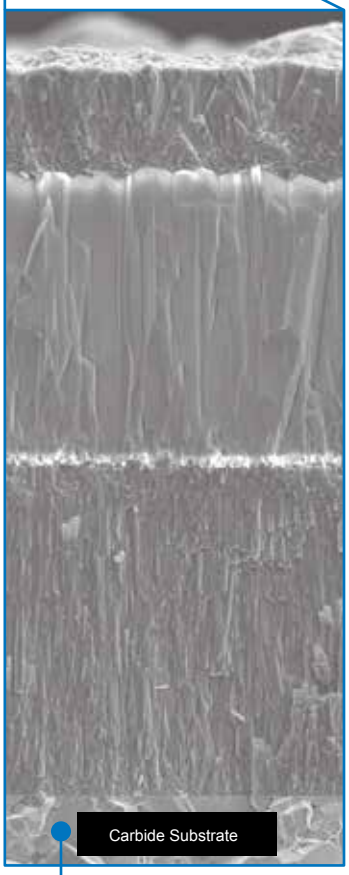
New



AC8115P

CVD ABSOTECH

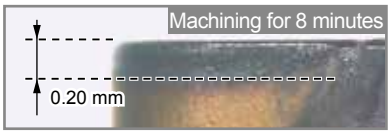
Thanks to a high-hardness layer, evolving fine crystal orientation control technology, and a new carbide substrate with excellent plastic deformation resistance, superb wear resistance is realised over a wide range of machining, including high-efficiency machining and dry machining.



Hard Surface Layer

Initial wear is reduced while also providing both high compression stress and gold colour with excellent visuality for used corners.

AC8115P

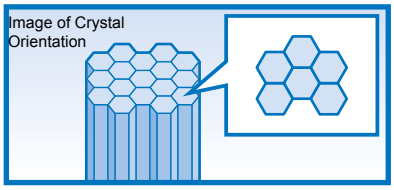


Competitor's Product A

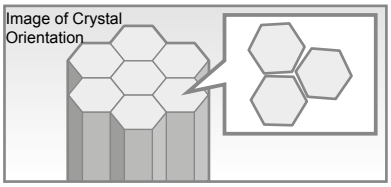
Work Material: 34CrMo4 Cutting Conditions: v_c=270m/min f=0.3mm/rev a_p=1.5mm Wet

Crystal Orientation Control Ultra-fine Alumina Layer

Improved coating strength suppresses wear due to crystal fallout, achieving wear resistance of at least 1.5x against conventional tools



Crystal Orientation Control Ultra-fine Alumina Layer



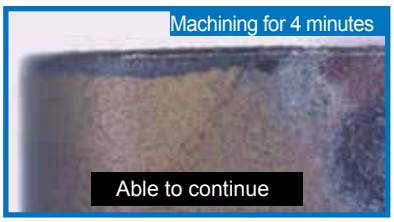
Conventional Orientation Al_2O_3

High Hardness Fine Grained TiCN Layer

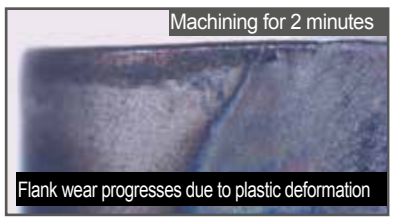
Significantly improves the coating hardness by using a fine and uniform crystal structure.

New carbide substrate with excellent plastic deformation resistance

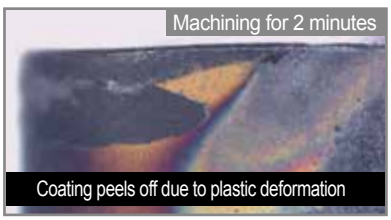
Plastic deformation resistance 2x or more through improved high-temperature properties



AC8115P



Conventional Tool



Competitor's Product B

Work Material: SK5 Cutting Conditions: v_c=170m/min f=0.6mm/rev a_p=1.5mm Dry

AC8115P Cutting Performance

High-speed Machining

AC8115P

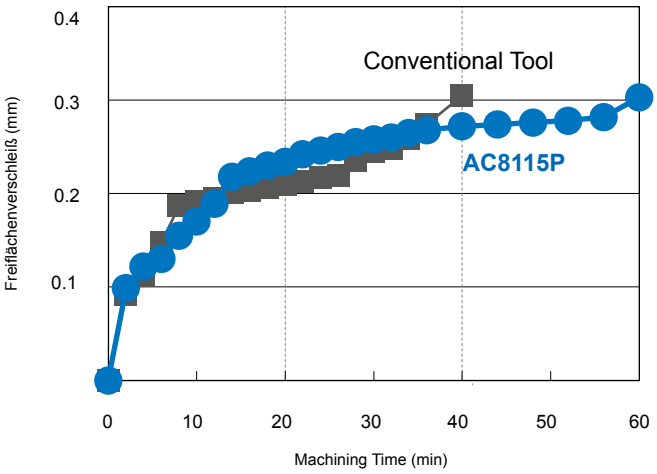
New

ABSOTECH Crystal Orientation Control Ultra-fine Alumina Layer — Amazing Wear Resistance

Crater damage is suppressed and tool life extended through improved alumina layer coating strength and higher carbide substrate plastic deformation resistance

AC8115P Cutting Performance (Conditions Same as Conventional)

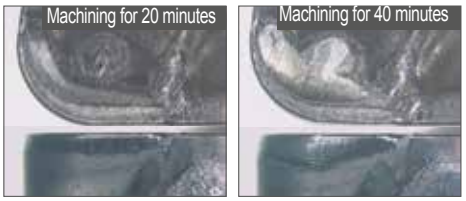
Wear resistance 1.5x through improved plastic deformation resistance



AC8115P

Minor wear | Able to continue | Tool life

Conventional Tool

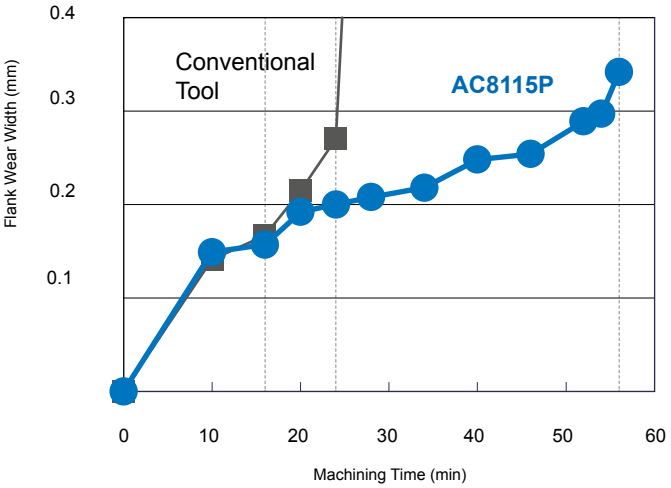


Exposed substrate | Tool life reached due to plastic deformation | Tool broken

Work Material: 34CrMo4 Round Bar (External Turning) Insert: CNMG120408N-GE (AC8115P) Cutting Conditions: v_c=270m/min f=0.3mm/rev a_p=1.5mm Wet

AC8115P Cutting Performance (High-speed Machining)

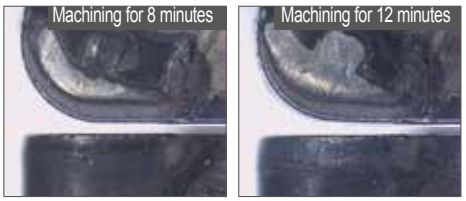
Wear resistance 2x or more through improved alumina layer wear resistance



AC8115P

Minor wear | Able to continue | Tool life

Conventional Tool

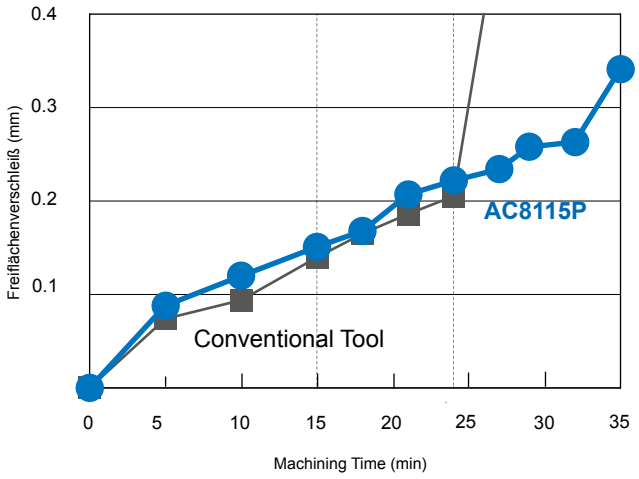


Exposed substrate | Tool life | Tool broken

Work Material: 34CrMo4 Round Bar (External Turning) Insert: CNMG120408N-GE (AC8115P) Cutting Conditions: v_c=350m/min f=0.3mm/rev a_p=1.5mm Wet

AC8115P Cutting Performance (Dry Machining)

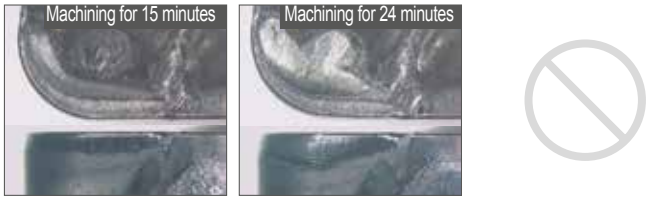
Wear resistance 1.5x through improved alumina layer wear resistance and plastic deformation resistance



AC8115P

Minor wear | Able to continue | Tool life

Conventional Tool



Exposed substrate | Tool life | Tool broken

Work Material: 34CrMo4 Round Bar (External Turning) Insert: CNMG120408N-GE (AC8115P) Cutting Conditions: v_c=270m/min f=0.3mm/rev a_p=1.5mm Dry

AC8115P Recommended Cutting Conditions

Min. - **Optimum** - Max.

Insert Shape / Cutting Edge Length	Chipbreaker	Mild Steel (S235JR, etc.) Low Carbon Steel (Ck10, etc.) Low-alloy Steel (15CrMo5, etc.) 180HB or less			High Carbon Steel (Ck45, etc.) High-alloy Steel (34CrMo4, etc.) 180HB or more		
		Depth of Cut a_p (mm)	Feed Rate f (mm/rev)	Cutting Speed v_c (m/min)	Depth of Cut a_p (mm)	Feed Rate f (mm/rev)	Cutting Speed vc (m/min)
CNM□12 TNM□16 DNM□15 TNM□22 SNM□12 WNM□08	FE	0.1-**0.4**-1.2	0.10-**0.20**-0.40	190-**310**-500	0.1-**0.4**-1.2	0.10-**0.20**-0.40	140-**260**-450
	LU/SU/SE	0.5-**1.5**-2.0	0.10-**0.20**-0.40	170-**310**-500	0.5-**1.5**-2.0	0.10-**0.20**-0.40	130-**260**-450
	SEW	0.5-**1.5**-2.0	0.10-**0.40**-0.60	170-**310**-500	0.5-**1.5**-2.5	0.10-**0.40**-0.60	130-**260**-450
	GU/GE/UX	0.8-**2.2**-5.0	0.10-**0.30**-0.45	170-**310**-500	0.8-**2.2**-5.0	0.10-**0.30**-0.45	130-**260**-450
	MU	1.8-**3.0**-6.0	0.20-**0.35**-0.60	140-**280**-440	1.8-**3.0**-6.0	0.20-**0.35**-0.60	110-**240**-380
	ME	1.0-**3.0**-6.0	0.20-**0.45**-0.70	140-**280**-440	1.0-**3.0**-6.0	0.20-**0.45**-0.70	110-**240**-380
	HG	3.0-**4.5**-8.0	0.35-**0.50**-0.80	140-**280**-440	3.0-**4.5**-8.0	0.35-**0.50**-0.80	110-**240**-380
CNM□16 SNM□15	GU/GE/UX	0.8-**3.5**-5.0	0.15-**0.30**-0.45	140-**280**-400	0.8-**3.5**-5.0	0.15-**0.30**-0.45	110-**240**-380
	MU	1.8-**4.5**-6.0	0.20-**0.40**-0.60	140-**240**-360	1.8-**4.5**-6.0	0.20-**0.40**-0.60	110-**200**-300
	ME	1.5-**4.5**-7.0	0.20-**0.50**-0.70	140-**240**-360	1.5-**4.5**-7.0	0.20-**0.50**-0.70	110-**200**-300
	HG	3.0-**5.0**-8.0	0.35-**0.60**-0.80	120-**210**-330	3.0-**5.0**-6.0	0.35-**0.60**-0.80	90-**170**-270
CNM□19 SNM□19 CNM□25 SNM□25 DNM□19 TNM□27	MU	1.8-**5.0**-6.0	0.20-**0.40**-0.60	140-**240**-360	1.8-**5.0**-6.0	0.20-**0.40**-0.60	110-**200**-300
	ME	2.0-**5.0**-8.0	0.20-**0.50**-0.70	140-**240**-360	2.0-**5.0**-8.0	0.20-**0.50**-0.70	110-**200**-300
	HG	3.0-**6.5**-9.0	0.35-**0.60**-0.80	120-**210**-330	3.0-**6.5**-9.0	0.35-**0.60**-0.80	90-**170**-270

■ Application Guide

1st Recommended Grade

General-purpose machining **AC8025P** + **GU** type Chipbreaker

	Chipbreakers for High-efficiency Machining	Main Chipbreakers	Strong Cutting Edge Chipbreakers
Finishing to Small Depth of Cut	FE type, SE type	SU type	SX type
General-purpose	GE type	GU type (1st Recommend), MU type	UX type, MX type
Roughing to Large Depth of Cut	ME type		

For high-speed and dry machining

High-speed machining **AC8115P**

To improve tool life at small depths of cut	FE type
To increase feed rate	GE type

For heavy interrupted cutting emphasizing stability

Interrupted Machining **AC8035P**

To improve tool life at small depths of cut	GU type
To increase feed rate	UX type

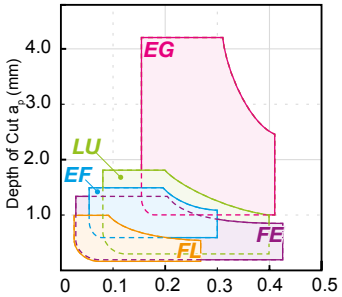
For high-efficiency machining of carbide and forged material

High Efficiency **AC8020P**

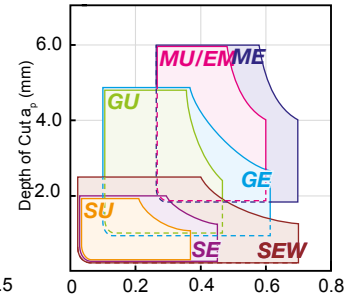
To increase feed rate	FE type	To increase cutting speed	GE type

■ Application Guide

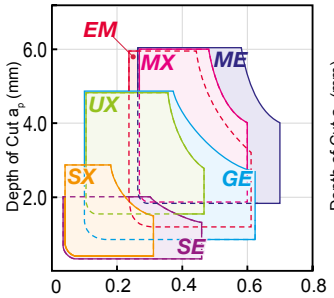
● Chip evacuation emphasised



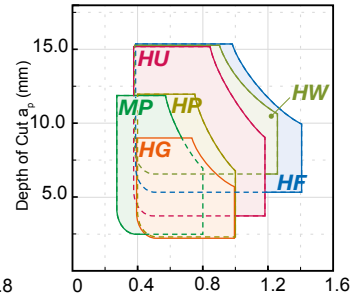
● Continuous to light interrupted cutting



● Light interrupted to heavy interrupted cutting



● Rough to heavy cutting



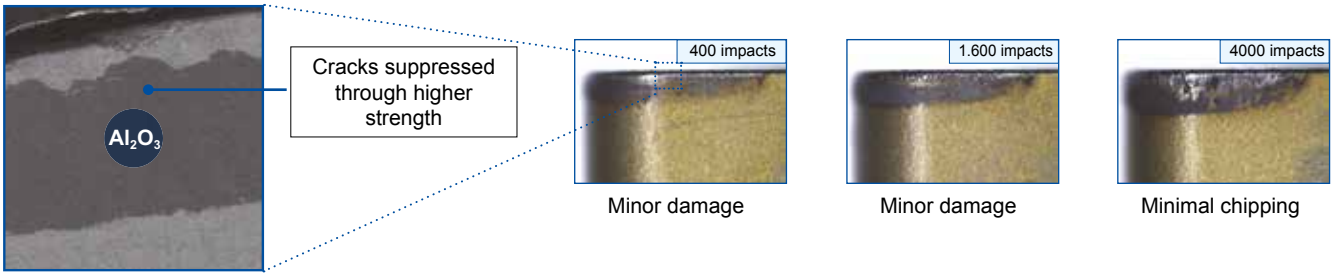
Cutting Performance

Balance of high wear resistance and stability. Chipping resistance 2,5 x or more.

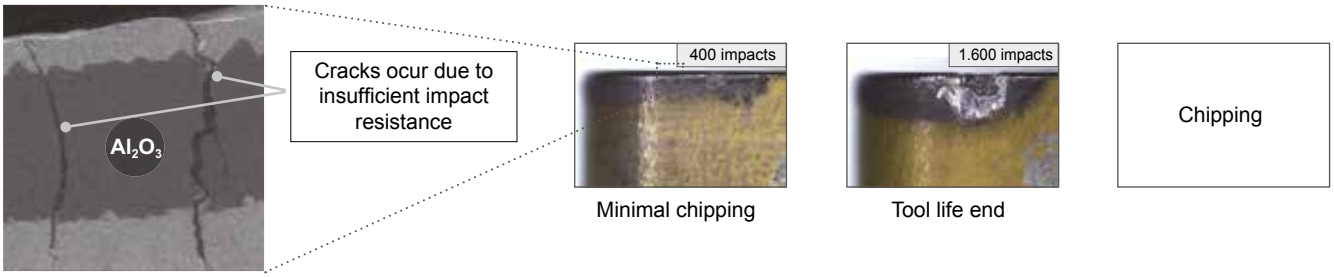
High Efficiency **AC8020P** ABSOTECH High Strength Alumina Layer | Excellent Chipping Resistance

Alumina layer with even higher strength suppresses chipping.

AC8020P



Conventional Tool



Work Material:	34CrMo4 (forged part with interrupted sections)
Insert:	CNMG120408NGU AC8020P
Cutting Data:	v_c = 250 m/min, f = 0,3 mm/rev., a_p = 1,5 mm, wet

Recommended Cutting Conditions

Min - **Optimum** - Max

Insert Specification		Chipbreaker	Soft Steel, Low Carbon Steel, Low Alloy Steel < 180HB			High Carbon Steel, High Alloy Steel > 180HB		
			Depth of Cut a_p (mm)	Feed Rate f (mm/rev)	Cutting Speed v_c (m/min)	Depth of Cut a_p (mm)	Feed Rate f (mm/rev)	Cutting Speed v_c (m/min)
CNM_12 DNM_15 SNM_12	TNM_16 TNM_ 22 WNM_08	NFE	0,1–**0,4**–1,2	0,10–**0,20**–0,40	180–**290**–450	0,1–**0,4**–1,2	0,10–**0,20**–0,40	130–**240**–400
		NLU - NSU - NSE	0,5–**1,5**–2,0	0,10–**0,20**–0,40	160–**290**–420	0,5–**1,5**–2,0	0,10–**0,20**–0,40	120–**240**–370
		NSEW	0,5–**1,5**–2,5	0,10–**0,40**–0,60	160–**290**–420	0,5–**1,5**–2,5	0,10–**0,40**–0,60	120–**240**–370
		NGU - NGE - NUX	0,8–**2,2**–5,0	0,10–**0,30**–0,45	160–**290**–420	0,8–**2,2**–5,0	0,10–**0,30**–0,45	120–**240**–370
		NMU	1,8–**3,0**–6,0	0,20–**0,35**–0,60	140–**250**–350	1,8–**3,0**–6,0	0,20–**0,35**–0,60	100–**220**–300
		NME	1,0–**3,0**–6,0	0,20–**0,45**–0,70	140–**250**–350	1,0–**3,0**–6,0	0,20–**0,45**–0,70	100–**220**–300
		NHG	3,0–**4,5**–8,0	0,35–**0,50**–0,80	120–**230**–330	3,0–**4,5**–8,0	0,35–**0,50**–0,80	100–**220**–300
CNM_16	SNM_15	NGU - NGE - NUX	0,8–**3,5**–5,0	0,15–**0,30**–0,45	110–**260**–350	0,8–**3,5**–5,0	0,15–**0,30**–0,45	100–**220**–300
		NMU	1,8–**4,5**–6,0	0,20–**0,40**–0,60	120–**220**–300	1,8–**4,5**– 6,0	0,20–**0,40**–0,60	100–**180**–250
		NME	1,5–**4,5**–7,0	0,20–**0,50**–0,70	120–**220**–300	1,5–**4,5**–7,0	0,20–**0,50**–0,70	100–**180**–250
		NHG	3,0–**5,0**–8,0	0,35–**0,60**–0,80	110–**190**–270	3,0–**5,0**–8,0	0,35–**0,60**–0,80	80–**150**–220
CNM_19 CNM_25 DNM_19	SNM_19 SNM_25 TNM_27	NMU	1,8–**5,0**–6,0	0,20–**0,40**–0,60	120–**220**–300	1,8–**5,0**–6,0	0,20–**0,40**–0,60	100–**180**–250
		NME	2,0–**5,0**–8,0	0,20–**0,50**–0,70	120–**220**–300	2,0–**5,0**–8,0	0,20–**0,50**–0,70	100–**180**–250
		NHG	3,0–**6,5**–9,0	0,35–**0,60**–0,80	110–**190**–270	3,0–**6,5**–9,0	0,35–**0,60**–0,80	80–**150**–220

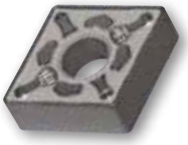
Cutting Performance

Suppresses adhesion with ultra-smooth surface. Adhesion fracture resistance 2 x or more.

General Machining

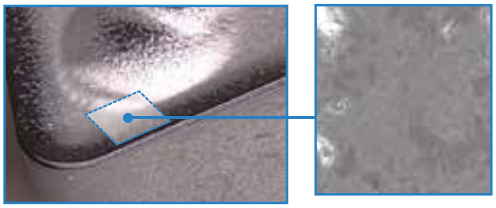
AC8025P

ABSOTECH Surface Smoothing Treatment — Absolute Reliability

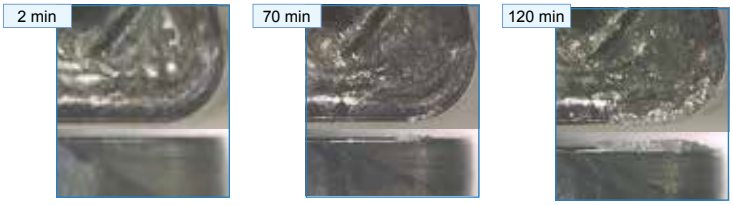


Surface smoothing treatment significantly suppresses adhesion and chipping.

AC8025P

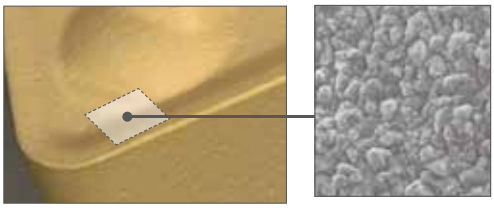


Ra 0,04 µm

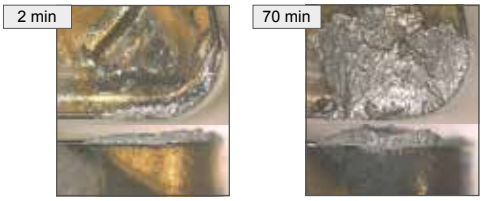


Normal wear — Minor damage only, able to continue

Conventional Tool



Ra 0,04 µm



Adhesion — Fracture

Unable to continue

Work Material:	15CrMo5 (facing)
Insert:	CNMG120408NGU AC8025P
Cutting Data:	v_c = 100–300 m/min, f = 0,3 mm/rev., a_p = 1,5 mm, wet

Recommended Cutting Conditions

Min - **Optimum** - Max

Insert Specification		Chipbreaker	Soft Steel, Low Carbon Steel, Low Alloy Steel < 180HB			High Carbon Steel, High Alloy Steel > 180HB		
			Depth of Cut a_p (mm)	Feed Rate f (mm/rev)	Cutting Speed v_c (m/min)	Depth of Cut a_p (mm)	Feed Rate f (mm/rev)	Cutting Speed v_c (m/min)
CNM_12 DNM_15 SNM_12	TNM_16 TNM_ 22 WNM_08	NFE	0,1–**0,4**–1,2	0,10–**0,25**–0,45	150–**250**–350	0,1–**0,4**–1,2	0,10–**0,25**–0,40	120–**210**–300
		NLU - NSU - NSE	0,5–**1,5**–2,0	0,10–**0,20**–0,40	150–**250**–350	0,5–**1,5**–2,0	0,10–**0,20**–0,40	120–**210**–300
		NSEW	0,5–**1,5**–2,5	0,10–**0,40**–0,60	150–**250**–350	0,5–**1,5**–2,5	0,10–**0,40**–0,60	120–**210**–300
		NGU - NGE - NUX	0,8–**2,2**–5,0	0,10–**0,30**–0,45	150–**230**–300	0,8–**2,2**–5,0	0,10–**0,30**–0,45	100–**180**–270
		NMU	1,8–**3,0**–6,0	0,20–**0,35**–0,60	130–**200**–280	1,8–**3,0**–6,0	0,20–**0,35**–0,60	80–**150**–230
		NME	1,0–**3,0**–6,0	0,20–**0,45**–0,70	130–**200**–280	1,0–**3,0**–6,0	0,20–**0,45**–0,70	80–**150**–230
		NHG	3,0–**4,5**–8,0	0,35–**0,50**–0,80	100–**180**–260	3,0–**4,5**–8,0	0,35–**0,50**–0,80	60–**130**–200
CNM_16	SNM_15	NGU - NGE - NUX	0,8–**3,5**–5,0	0,15–**0,30**–0,45	130–**200**–280	0,8–**3,5**–5,0	0,15–**0,30**–0,45	100–**160**–230
		NMU	1,8–**4,5**–6,0	0,20–**0,40**–0,60	100–**180**–260	1,8–**4,5**–6,0	0,20–**0,40**–0,60	80–**140**–210
		NME	1,5–**4,5**–7,0	0,20–**0,50**–0,70	100–**180**–260	1,5–**4,5**–7,0	0,20–**0,50**–0,70	80–**140**–210
		NHG	3,0–**5,0**–8,0	0,35–**0,60**–0,80	80–**160**–240	3,0–**5,0**–8,0	0,35–**0,60**–0,80	70–**120**–180
CNM_19 CNM_25 DNM_19	SNM_19 SNM_25 TNM_27	NMU	1,8–**5,0**–6,0	0,20–**0,40**–0,60	100–**180**–260	1,8–**5,0**–6,0	0,20–**0,40**–0,60	80–**140**–210
		NME	2,0–**5,0**–8,0	0,20–**0,50**–0,70	100–**180**–260	2,0–**5,0**–8,0	0,20–**0,50**–0,70	80–**140**–210
		NHG	3,0–**6,5**–9,0	0,35–**0,60**–0,80	80–**160**–240	3,0–**6,5**–9,0	0,35–**0,60**–0,80	70–**120**–180
		NHF	4,5–**8,0**–13,5	0,45–**0,80**–1,10	135–**170**–220	4,5–**8,0**–13,5	0,45–**0,80**–1,15	105–**140**–190

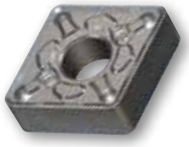
Cutting Performance

Suppresses crack growth and fractures by reducing tensile residual stress. Fracture resistance 2 x or more.

Interrupted Machining

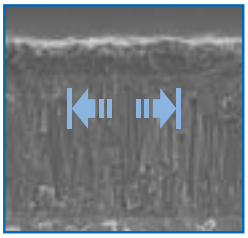
AC8035P

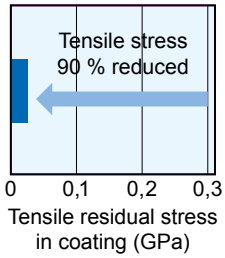
ABSOTECH Stress Control within Coating — Exceptional Stability

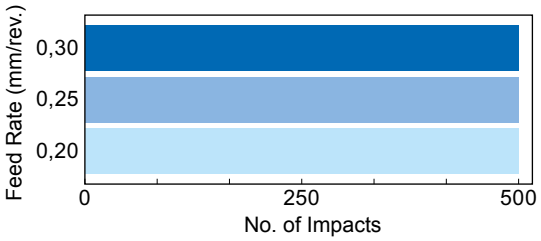


Special surface treatment reduces tensile stress in the coating layer, significantly suppressing fractures.

AC8035P

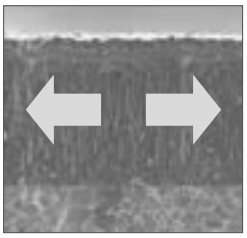


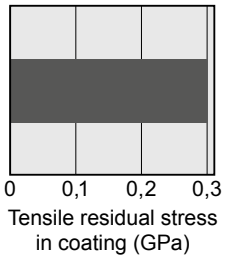


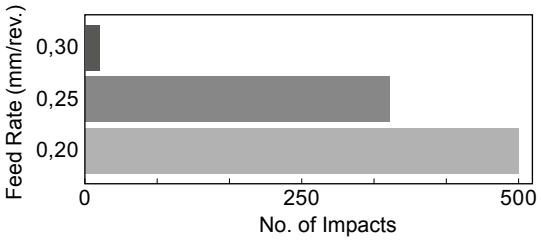


All corners able to continue

Conventional Tool







Unable to continue

Work Material:	34CrMo4 (external interrupted)
Insert:	CNMG120408NGU AC8035P
Cutting Data:	v_c = 160 m/min, f = 0,2–0,3 mm/rev., a_p = 2,0 mm, dry

Recommended Cutting Conditions

Min - **Optimum** - Max

Insert Specification		Chipbreaker	Soft Steel, Low Carbon Steel, Low Alloy Steel < 180HB			High Carbon Steel, High Alloy Steel > 180HB		
			Depth of Cut a_p (mm)	Feed Rate f (mm/rev)	Cutting Speed v_c (m/min)	Depth of Cut a_p (mm)	Feed Rate f (mm/rev)	Cutting Speed v_c (m/min)
CNM_12 DNM_15 SNM_12	TNM_16 TNM_ 22 WNM_08	NFE	0,1–**0,4**–1,2	0,10–**0,25**–0,45	120–**200**–300	0,1–**0,4**–1,2	0,10–**0,25**–0,45	120–**180**–250
		NLU - NSU - NSE	0,5–**1,3**–2,0	0,10–**0,20**–0,40	120–**200**–300	0,5–**1,3**–2,0	0,10–**0,20**–0,40	120–**180**–250
		NSEW	0,8–**2,2**–5,0	0,10–**0,30**–0,45	120–**200**–300	0,8–**2,2**–5,0	0,10–**0,30**–0,45	100–**150**–200
		NGU - NGE - NUX	1,8–**3,0**–6,0	0,20–**0,35**–0,60	100–**180**–250	1,8–**3,0**–6,0	0,20–**0,35**–0,60	80–**130**–180
		NMU	1,0–**3,0**–6,0	0,20–**0,45**–0,70	100–**180**–250	1,0–**3,0**–6,0	0,20–**0,45**–0,70	80–**130**–180
		NME	3,0–**4,5**–8,0	0,35–**0,50**–0,80	100–**150**–200	3,0–**4,5**–8,0	0,35–**0,50**–0,80	70–**100**–160
		NHG	3,0–**4,5**–8,0	0,15–**0,30**–0,45	100–**180**–250	3,0– **4,5**–8,0	0,15–**0,30**–0,45	90–**130**–170
CNM_16	SNM_15	NGU - NGE - NUX	0,8–**3,5**–5,0	0,20–**0,40**–0,60	100–**150**–200	0,8–**3,5**–5,0	0,20–**0,40**–0,60	70–**110**–150
		NMU	1,8–**4,5**–6,0	0,20–**0,50**–0,70	100–**150**–200	1,8–**4,5**–6,0	0,20–**0,50**–0,70	70–**110**–150
		NME	1,5–**4,5**–7,0	0,35–**0,60**–0,80	80–**130**–180	1,5–**4,5**–7,0	0,35–**0,60**–0,80	60–**100**–140
		NHG	3,0–**5,0**–8,0	0,20–**0,40**–0,60	100–**150**–200	3,0–**5,0**–8,0	0,20–**0,40**–0,60	70–**110**–150
CNM_19 CNM_25 DNM_19	SNM_19 SNM_25 TNM_27	NMU	2,0–**5,0**–8,0	0,20–**0,50**–0,70	100–**150**–200	2,0–**5,0**–8,0	0,20–**0,50**–0,70	70–**110**–150
		NME	3,0–**6,5**–9,0	0,35–**0,60**–0,80	80–**130**–180	3,0–**6,5**–9,0	0,35–**0,60**–0,80	60–**100**–140
		NHG	4,5–**8,0**–13,5	0,45–**0,80**–1,15	120–**150**–190	4,5–**8,0**–13,5	0,45–**0,80**–1,15	90–**120**–160
		NHF	5,0–**8,0**–13,5	0,80–**1,20**–1,60	70–**110**–150	5,0–**8,0**–13,5	0,80–**1,20**–1,60	50– **80**–120