

# Recommended Running Conditions

Recommended first choice, Recommended second choice, Recommended third choice

WORK MATERIAL	HARD-NESS BHn/Rc	GRADE	MACHINING PARAMETERS		
			Finishing .002~.008 IPR .005"~.060" D.O.C.	Gen. Purpose .008~.020 IPR .040"~.200" D.O.C.	Roughing .015~.028 IPR .200"~ D.O.C.
<b>LOW CARBON STEELS</b>  1005,1006,1008,1009,1010,1011,1012,1013,1015,1016,1017,1018,1019,1020,1021,1022,1023,1025,1026,1029,1108,1109,1110,1115,1116,1117,1118,1119,1211,1212,1213,1215,1513,1518,1522	<250		CUTTING SPEED (SFM)		
		T1200A	800~1500	800~1300	—
		<b>T2000Z</b>	800~1600	800~1400	—
		<b>AC700G</b>	800~1500	800~1300	700~1000
		<b>AC1000</b>	800~1500	800~1300	700~1000
		<b>AC2000</b>	500~1200	500~1000	400~900
		<b>AC3000</b>	—	500~900	400~850
	220~350	T1200A	700~1200	700~1100	—
		<b>T2000Z</b>	700~1300	700~1200	—
		<b>AC700G</b>	700~1200	700~1100	600~950
		<b>AC1000</b>	700~1200	700~1100	600~950
		<b>AC2000</b>	500~1000	500~900	400~800
		<b>AC3000</b>	—	500~800	400~750
	HRc 35~55	T1200A	400~600	400~550	—
		<b>T2000Z</b>	400~700	400~650	—
		<b>AC700G</b>	400~600	400~550	350~550
		<b>AC1000</b>	400~600	400~550	350~550
		<b>AC2000</b>	300~500	300~450	300~450
		<b>AC3000</b>	250~450	200~400	200~400
		NB90S	1000~1400	—	—
	<b>LOW/MEDIUM CARBON STEEL-LEADED</b>  10L18, 10L45, 10L50, 11L17, 11L37, 11L41, 11L44, 12L13, 12L14, 12L15	<250	T1200A	1000~1500	1000~1400
<b>T2000Z</b>			1000~1600	1000~1500	—
<b>AC700G</b>			1000~1500	1000~1400	900~1300
<b>AC1000</b>			1000~1500	1000~1400	900~1300
<b>AC2000</b>			800~1400	750~1300	600~1100
<b>AC3000</b>			—	750~1200	650~1000
250~350		T1200A	900~1200	800~1100	—
		<b>T2000Z</b>	900~1300	800~1200	—
		<b>AC700G</b>	900~1200	800~1100	700~1000
		<b>AC1000</b>	900~1200	800~1100	700~1000
		<b>AC2000</b>	800~1000	700~900	650~900
		<b>AC3000</b>	—	700~900	650~900
Chipbreaker preference			EFA/ESP ESU/ESX	EUX/ENG EGU/EMU	EMU/EMX

General Info

Negative Inserts

Positive Inserts

Ace-Fix Inserts

Threading, Grooving, & Cut-Off Inserts

Ceramic Inserts

PCBN & PCD Inserts

Toolholders

Swiss Toolholders

Boring Bars

Technical Info

ALMT

# Recommended Running Conditions

General Info	Recommended first choice		Recommended second choice		Recommended third choice		
	WORK MATERIAL	HARDNESS BHn/Rc	GRADE	MACHINING PARAMETERS			
				Finishing .002~.012 IPR .005"~.060" D.O.C.	Gen. Purpose .010~.020 IPR .060"~.200" D.O.C.	Roughing .015~.026 IPR .200"~ D.O.C.	
Negative Inserts	MEDIUM CARBON STEELS	<250	CUTTING SPEED (SFM)				
			T1200A	900~1300	900~1200	-	
Positive Inserts	MEDIUM CARBON STEELS	<250	T2000Z	900~1400	900~1300	-	
			AC700G	900~1300	900~1200	800~1000	
Ace-Fix Inserts	MEDIUM CARBON STEELS	<250	AC1000	900~1300	900~1200	800~1000	
			AC2000	800~1000	500~900	450~800	
Threading, Grooving, & Cut-Off Inserts	MEDIUM CARBON STEELS	250~350	AC3000	-	500~800	400~700	
			T1200A	800~1200	700~1100	-	
Ceramic Inserts	MEDIUM CARBON STEELS	250~350	T2000Z	800~1300	700~1200	-	
			AC700G	800~1200	700~1100	600~1000	
PCBN & PCD Inserts	MEDIUM CARBON STEELS	250~350	AC1000	800~1200	700~1100	600~1000	
			AC2000	600~1000	500~900	450~950	
Toolholders	MEDIUM CARBON STEELS	250~350	AC3000	-	500~850	400~800	
			T1200A	600~900	400~800	-	
Swiss Toolholders	MEDIUM/HIGH CARBON STEELS-LEADED	~250	T2000Z	600~1000	400~900	-	
			AC700G	500~900	400~750	350~700	
Boring Bars	MEDIUM/HIGH CARBON STEELS-LEADED	~250	AC1000	500~900	400~750	350~700	
			AC2000	400~750	350~700	300~550	
Technical Info	MEDIUM/HIGH CARBON STEELS-LEADED	~250	AC3000	-	350~600	300~500	
			NB90S	1000~1400	-	-	
ALMT	MEDIUM/HIGH CARBON STEELS-LEADED	~250	Chipbreaker preference	EFA/ESP ESU/ESX	EUX/ENG EGU/EMU	EMX/EMU	
			T1200A	800~1400	800~1300	-	
			T2000Z	800~1500	800~1400	-	
			AC700G	800~1400	800~1300	700~1100	
			AC1000	800~1400	800~1300	700~1100	
			AC2000	800~1200	700~1000	600~900	
			AC3000	-	650~950	550~800	
			Chipbreaker preference	EFA/ESP ESU/ESX	EUX/ENG EGU/EMU	EMX/EMU	

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General Info	Recommended first choice		Recommended second choice		Recommended third choice		
	WORK MATERIAL	HARDNESS BHn/Rc	GRADE	MACHINING PARAMETERS			
				Finishing .002~.012 IPR .005"~.060" D.O.C.	Gen. Purpose .010~.020 IPR .060"~.200" D.O.C.	Roughing .015~.026 IPR .200"~ D.O.C.	
Negative Inserts	MEDIUM/HIGH CARBON STEELS-LEADED cont.	250~350	CUTTING SPEED (SFM)				
			T1200A	800~1300	750~1200	-	
Positive Inserts	MEDIUM/HIGH CARBON STEELS-LEADED cont.	250~350	T2000Z	800~1400	750~1300	-	
			AC700G	800~1300	750~1200	650~1000	
Ace-Fix Inserts	MEDIUM/HIGH CARBON STEELS-LEADED cont.	250~350	AC1000	800~1300	750~1200	650~1000	
			AC2000	700~1100	650~1000	550~900	
Threading, Grooving, & Cut-Off Inserts	MEDIUM/HIGH CARBON STEELS-LEADED cont.	250~350	AC3000	-	600~1000	500~800	
			T1200A	700~1100	700~1000	-	
Ceramic Inserts	ALLOY STEELS-MEDIUM CARBON	<250	T2000Z	700~1200	700~1100	-	
			AC700G	700~1100	700~1000	500~800	
PCBN & PCD Inserts	ALLOY STEELS-MEDIUM CARBON	<250	AC1000	700~1100	700~1000	500~800	
			AC2000	600~950	500~850	450~800	
Toolholders	ALLOY STEELS-MEDIUM CARBON	<250	AC3000	-	500~800	400~700	
			T1200A	600~1000	600~900	-	
Swiss Toolholders	ALLOY STEELS-MEDIUM CARBON	250~350	T2000Z	600~1100	600~1000	-	
			AC700G	600~1000	600~900	-	
Boring Bars	ALLOY STEELS-MEDIUM CARBON	250~350	AC1000	600~1000	600~900	-	
			AC2000	500~900	450~800	400~750	
Technical Info	ALLOY STEELS-MEDIUM CARBON	250~350	AC3000	-	400~750	300~700	
			T1200A	300~600	300~500	-	
ALMT	ALLOY STEELS-MEDIUM CARBON	36-50	T2000Z	300~700	300~600	-	
			AC700G	300~600	300~500	200~500	
	ALLOY STEELS-MEDIUM CARBON	36-50	AC1000	300~600	300~500	200~500	
AC2000			250~500	200~450	150~400		
	ALLOY STEELS-MEDIUM CARBON	36-50	AC3000	250~400	200~400	150~400	
NB90S			500~900	-	-		
	ALLOY STEELS-MEDIUM CARBON	36-50	Chipbreaker preference	EFA/ESP ESU/ESX	EUX/ENG EGU/EMU	EMX/EMU	

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WORK MATERIAL	HARD-NESS BHn/Rc	GRADE	MACHINING PARAMETERS		
			Finishing .002~.012 IPR .005"~.060" D.O.C.	Gen. Purpose .010~.020 IPR .060"~.200" D.O.C.	Roughing .015~.026 IPR .200"~ D.O.C.
HIGH CARBON STEELS 50100, 51100 52100, M-50	<250		CUTTING SPEED (SFM)		
		T1200A	800~1200	700~1100	—
		<b>T2000Z</b>	800~1300	700~1200	—
		<b>AC700G</b>	800~1150	700~1050	600~900
		<b>AC1000</b>	800~1150	700~1050	600~900
		<b>AC2000</b>	450~850	300~750	300~700
		<b>AC3000</b>	—	300~750	300~650
	250~350	T1200A	700~1100	600~1000	—
		<b>T2000Z</b>	700~1200	600~1100	—
		<b>AC700G</b>	700~1050	600~1000	500~700
		<b>AC1000</b>	700~1050	600~1000	500~700
		<b>AC2000</b>	550~850	500~750	400~650
		<b>AC3000</b>	—	450~700	400~600
	HRc 36~50	T1200A	400~800	300~700	—
		<b>T2000Z</b>	400~900	300~800	—
		<b>AC700G</b>	350~750	300~650	200~550
		<b>AC1000</b>	350~750	300~650	200~550
		<b>AC2000</b>	350~600	200~500	200~450
		<b>AC3000</b>	—	200~600	200~500
		NB90S	500~1000	—	—
	TOOL STEELS DIE STEELS	<250	T1200A	500~750	350~700
<b>T2000Z</b>			500~850	350~800	—
<b>AC700G</b>			500~800	350~700	300~650
<b>AC1000</b>			500~800	350~700	300~650
<b>AC2000</b>			400~700	350~650	300~600
<b>AC3000</b>			—	350~650	300~600
Chipbreaker preference		EFA/ESU/ESX	EUX/ENG EGU/EMU	EMX/EMU	

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WORK MATERIAL	HARD- NESS BHn/Rc	GRADE	MACHINING PARAMETERS		
			Finishing .002~.012 IPR .005"~.060" D.O.C.	Gen. Purpose .010~.020 IPR .060"~.200" D.O.C.	Roughing .015~.026 IPR .200"~ D.O.C.
TOOL STEELS DIE STEELS cont.	250~ 350		CUTTING SPEED (SFM)		
		T1200A	650~900	450~850	—
		<b>T2000Z</b>	500~800	350~800	—
		<b>AC700G</b>	500~800	450~700	350~650
		<b>AC1000</b>	500~800	450~700	350~650
		<b>AC2000</b>	400~750	400~650	300~600
		<b>AC3000</b>	—	300~650	200~600
	HRc 36~50	T1200A	350~500	300~450	—
		<b>T2000Z</b>	300~550	200~500	—
		<b>AC700G</b>	300~500	200~400	200~400
		<b>AC1000</b>	300~500	200~400	200~400
		<b>AC2000</b>	200~400	200~350	150~300
		<b>AC3000</b>	200~400	200~350	150~300
		NB90S	300~600	—	—
HIGH STRENGTH STEELS  300M, 4340, 4340M 4340V, H13, H11	250~ 300	T1200A	600~900	450~800	—
		<b>T2000Z</b>	550~950	450~850	—
		<b>AC700G</b>	500~850	350~750	300~600
		<b>AC1000</b>	500~850	350~750	300~600
		<b>AC2000</b>	400~700	350~700	300~650
		<b>AC3000</b>	—	350~700	300~600
	300~ 350	T1200A	550~800	350~750	—
		<b>T2000Z</b>	500~900	350~850	—
		<b>AC700G</b>	500~800	350~750	300~700
		<b>AC1000</b>	500~800	350~750	300~700
		<b>AC2000</b>	400~800	300~700	250~650
		<b>AC3000</b>	—	300~650	250~600
	HRc 35~45	T1200A	300~550	250~500	—
		<b>T2000Z</b>	300~600	250~600	—
		<b>AC700G</b>	300~500	250~400	250~400
		<b>AC1000</b>	300~500	250~400	250~400
		<b>AC2000</b>	250~450	200~350	150~300
		<b>AC3000</b>	—	200~350	150~300
		NB90S	300~600	—	—
	Chipbreaker preference	EFA/ESP ESU/ESX	EUX/ENG EGU/EMU	EMU/EMX	

General  
Info

Negative  
Inserts

Positive  
Inserts

Ace-Fix  
Inserts

Threading,  
Grooving,  
& Cut-Off  
Inserts

Ceramic  
Inserts

PCBN  
& PCD  
Inserts

Toolholders

Swiss  
Toolholders

Boring  
Bars

Technical  
Info

ALMT

# Recommended Running Conditions

Recommended first choice, Recommended second choice, Recommended third choice

WORK MATERIAL	HARD-NESS BHn/Rc	GRADE	MACHINING PARAMETERS		
			Finishing .002~.010 IPR .005"~.060" D.O.C.	Gen. Purpose .008~.016 IPR .040"~.150" D.O.C.	Roughing .010~.020 IPR .120"~.250" D.O.C.
STAINLESS STEEL 300 SERIES AUSTENITIC	160~ 280	CUTTING SPEED (SFM)			
		T1200A	350~750	300~600	—
		T2000Z	300~800	300~700	—
		EH10	250~500	250~450	—
		EH10Z	300~700	300~650	—
		EH20Z	—	300~650	300~600
		EH510	350~650	350~550	—
		EH520	—	325~525	300~500
		EH510Z	400~900	450~850	—
		EH520Z	—	400~800	300~700
		AC700G	450~650	400~600	—
		AC1000	450~650	400~600	—
		AC2000	—	300~600	300~550
		AC3000	—	250~600	200~550
		AC304	—	300~600	300~550
Chipbreaker preference		ESP/ESU/ESX	EUP/ENG EEX/EGU	EMU/EHP	
STAINLESS STEEL 400 SERIES MARTENSITIC	160~ 260	T1200A	300~750	300~650	—
		T2000Z	300~850	300~750	—
		EH10	250~450	250~400	—
		EH10Z	300~700	300~650	—
		EH20Z	—	300~650	300~600
		EH510	350~650	350~550	—
		EH520	—	325~525	300~500
		EH510Z	400~900	450~850	—
		EH520Z	—	400~800	300~700
		AC700G	450~650	400~600	—
		AC1000	450~650	400~600	—
		AC2000	—	300~600	300~550
		AC3000	—	250~600	200~550
		AC304	—	300~600	300~550
		Chipbreaker preference		ESP/ENK/ESU	EEX/ENG EGU/EMU

# Recommended Running Conditions

Recommended first choice, Recommended second choice, Recommended third choice

WORK MATERIAL	HARD-NESS BHn/Rc	GRADE	MACHINING PARAMETERS			
			Finishing .002~.010 IPR .005"~.060" D.O.C.	Gen. Purpose .008~.016 IPR .040"~.150" D.O.C.	Roughing .010~.020 IPR .120"~.250" D.O.C.	
STAINLESS STEEL 400 SERIES MARTENSITIC cont.	260~ 380	CUTTING SPEED (SFM)				
		T1200A	200~600	200~550	—	
		T2000Z	200~700	200~650	—	
		EH10	200~500	200~400	—	
		EH10Z	300~650	200~550	—	
		EH20Z	—	200~600	200~600	
		EH510	300~600	300~600	—	
		EH520	—	300~550	250~500	
		EH510Z	400~800	400~750	—	
		EH520Z	—	300~800	300~700	
		AC700G	350~700	250~650	—	
		AC1000	350~700	250~650	—	
		AC2000	—	200~600	200~600	
		AC3000	—	200~600	200~600	
		AC304	—	200~600	200~550	
	HrC 36~46	T1200A	200~600	200~500	—	
		T2000Z	200~700	200~650	—	
		EH20Z	—	200~550	200~500	
		EH510	200~500	200~450	—	
		EH520	—	200~450	200~400	
		EH510Z	300~600	250~600	—	
		EH520Z	—	250~600	250~600	
		AC700G	200~650	200~600	—	
		AC1000	200~650	200~600	—	
		AC2000	—	200~550	200~500	
		AC3000	—	200~550	200~500	
		AC304	—	200~500	200~500	
		Chipbreaker preference		ESP/ENK ESU/ESX	EEX/ENG EGU/EMU	EMU/EMX/EHP

# Recommended Running Conditions

General Info	Recommended first choice,		Recommended second choice,		Recommended third choice	
	WORK MATERIAL	HARD-NESS BHn/Rc	GRADE	MACHINING PARAMETERS		
				Finishing .002~.008 IPR .005"~.060" D.O.C.	Gen. Purpose .008~.016 IPR .040"~.150" D.O.C.	Roughing .010~.020 IPR .120"~.250" D.O.C.
Negative Inserts	STAINLESS STEEL PRECIPITATION HARDENING  15-5PH, 16-6PH, 17-4, 17-7PH, 13-8 Mo	160~ 260	CUTTING SPEED (SFM)			
Positive Inserts			T1200A	300~800	250~700	—
Ace-Fix Inserts			T2000Z	300~900	250~750	—
Threading, Grooving, & Cut-Off Inserts			EH10	250~550	250~400	—
			EH10Z	300~850	300~750	—
Ceramic Inserts			EH20Z	—	300~700	300~600
			EH510	350~700	325~600	—
PCBN & PCD Inserts			EH520	—	300~650	250~550
			EH510Z	400~900	350~850	—
Toolholders			EH520Z	—	400~800	400~750
			AC700G	400~800	400~700	—
Swiss Toolholders			AC1000	400~800	400~700	—
			AC2000	300~750	300~650	300~600
Boring Bars			AC3000	—	300~650	300~600
			AC304	—	250~550	250~500
Technical Info		Chipbreaker preference	EFA/ESP	EGU/ENG	EMU/EMX	
			ESU/ENK	EEX/EUP		
ALMT						

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	WORK MATERIAL	HARD-NESS BHn/Rc	GRADE	MACHINING PARAMETERS			
				Finishing .002~.008 IPR .005"~.040" D.O.C.	Gen. Purpose .006~.016 IPR .040"~.150" D.O.C.	Roughing .010~.020 IPR .120"~.200" D.O.C.	
Negative Inserts	STAINLESS STEEL WROUGHT AUSTENITIC  NITRONIC 32 NITRONIC 33 NITRONIC 40 NITRONIC 50 NITRONIC 60	250~	CUTTING SPEED (SFM)				
Positive Inserts			T1200A	200~600	200~550	—	
Ace-Fix Inserts			T2000Z	200~700	200~650	—	
Threading, Grooving, & Cut-Off Inserts			EH510/520	250~600	200~500	150~400	
			EH10Z	200~650	200~650	300~600	
Ceramic Inserts			EH20Z	200~650	200~600	200~600	
			EH510Z	200~750	200~750	300~700	
PCBN & PCD Inserts			EH520Z	200~750	200~700	200~700	
			AC700G	300~750	250~650	250~650	
Toolholders			AC1000	300~750	250~650	250~650	
			AC2000	300~700	200~600	200~600	
Swiss Toolholders			AC3000	300~700	200~600	300~600	
			AC300G	200~650	200~600	200~600	
Boring Bars			Chipbreaker preference	ESU/ENK	EUP/ENG/EEX	EMU/EHP	
				ESX/EEX			
Technical Info		HIGH TEMP. ALLOYS <i>Nickel Base, Wrought</i> Haynes Alloy 263 Incoloy Alloy 901, 903 Inconel Alloy 617, 625, 702, 706, 718, 721, 722, X-750, 751, M252 Nimonic 75, 80 Waspaloy	200~ 300	EH10/20	50~120	30~100	30~70
				EH510/520	50~150	30~130	30~100
EH10Z		100~165		80~140	40~100		
EH20Z		100~165		80~140	40~100		
EH510Z		100~195		80~170	40~130		
ALMT	Nickel Base, Wrought Hastelloy Alloy	300~ 400	EH520Z	100~195	80~170	40~130	
			EH10/20	40~100	30~80	30~60	
EH510/520	40~130		30~110	30~90			
EH10Z	90~140		70~120	30~90			
EH20Z	90~140		70~120	30~90			
Technical Info	Nickel Base, Wrought Incoloy Alloy 804, 825 Inconel Alloy 600, 601 Refractaloy 26	240~ 310	EH510Z	90~170	70~150	30~120	
			EH520Z	90~170	70~150	30~120	
EH10/20	100~160		80~120	70~100			
EH510/520	100~190		80~150	70~130			
EH10Z	120~200		90~160	80~140			
ALMT	Nickel Base, Cast Hastalloy Alloy	200~ 375	EH20Z	120~200	90~160	80~140	
			EH510Z	120~230	90~190	80~170	
EH520Z	120~230		90~190	80~170			
EH10/20	60~110		50~100	40~80			
EH510/520	60~140		50~130	40~110			
Technical Info	Nickel Base, Cast Hastalloy Alloy	240~ 310	EH10Z	80~150	60~130	50~110	
			EH20Z	80~150	60~130	50~110	
EH510Z	80~180		60~150	50~140			
EH520Z	80~180		60~150	50~140			
EH10/20	60~100		40~90	30~70			
ALMT	Nickel Base, Cast Hastalloy Alloy	200~ 375	EH510/520	60~130	40~120	30~100	
			EH10Z	70~140	50~120	40~100	
EH20Z	70~140		50~120	40~100			
EH510Z	70~170		50~150	40~130			
EH520Z	70~170		50~150	40~130			
ALMT	Chipbreaker preference	ESU/EUP/EEX	EUP/ENG EEX/EGU	EMU			

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General Info	Recommended first choice, Recommended second choice, Recommended third choice					
	WORK MATERIAL	HARDNESS BHn/Rc	GRADE	MACHINING PARAMETERS		
				Finishing .002~.008 IPR .005"~.060" D.O.C.	Gen. Purpose .006~.012 IPR .040"~.120" D.O.C.	Roughing .010~.018 IPR .100"~.180" D.O.C.
Negative Inserts	HIGH TEMP ALLOYS <i>Iron Base, Wrought</i>	180~230	CUTTING SPEED (SFM)			
			EH10/20	100~150	90~130	80~100
Positive Inserts	A-286 Incoloy Alloy 800, 800H, Incoloy Alloy 801, 802	250~320	EH510/520	100~180	90~170	80~140
			EH10Z	120~180	100~160	80~140
Ace-Fix Inserts	N-155, V-57, W-545 16-25-6, 19-9DL	250~320	EH20Z	120~180	100~160	80~140
			EH510Z	120~220	100~200	80~180
Threading, Grooving, & Cut-Off Inserts	Cobalt Base	250~320	EH520Z	120~220	100~200	80~180
			EH10/20	100~140	80~120	65~95
Ceramic Inserts	Stellite	250~320	EH510/520	100~170	80~150	65~125
			EH10Z	120~170	90~150	75~120
PCBN & PCD Inserts	Pure Titanium	250~320	EH510Z	120~210	90~190	75~160
			EH20Z	120~210	90~190	75~160
Toolholders	Titanium Alloy Ti-6Al-4V	250~320	EH10/20	90~140	90~120	70~100
			EH510/520	90~170	90~150	70~130
Swiss Toolholders	Titanium Alloy Ti-6Al-4V	250~320	EH10Z	110~180	100~150	80~130
			EH20Z	110~180	100~150	80~130
Boring Bars	ALUMINUM ALLOYS BRASS ALLOYS	250~320	EH510Z	110~210	100~180	80~160
			EH520Z	110~210	100~180	80~160
Technical Info	ALUMINUM ALLOYS BRASS ALLOYS	250~320	EH10/20	100~140	90~125	70~90
			EH510/520	100~170	90~155	70~120
ALMT	ALUMINUM ALLOYS BRASS ALLOYS	250~320	EH10Z	110~170	100~140	80~120
			EH20Z	110~170	100~140	80~120
ALMT	ALUMINUM ALLOYS BRASS ALLOYS	250~320	EH510Z	110~200	100~170	80~150
			EH520Z	110~200	100~170	80~150
ALMT	ALUMINUM ALLOYS BRASS ALLOYS	250~320	EH10/20	90~130	80~100	70~95
			EH510/520	90~160	80~130	70~125
ALMT	ALUMINUM ALLOYS BRASS ALLOYS	250~320	EH10Z	100~160	90~140	80~110
			EH20Z	100~160	90~140	80~110
ALMT	ALUMINUM ALLOYS BRASS ALLOYS	250~320	EH510Z	100~190	90~170	80~140
			EH520Z	100~190	90~170	80~140
ALMT	ALUMINUM ALLOYS BRASS ALLOYS	250~320	EH10/20	100~150	90~130	70~110
			EH510/520	100~180	90~160	70~140
ALMT	ALUMINUM ALLOYS BRASS ALLOYS	250~320	EH10Z	120~180	120~160	100~130
			EH20Z	120~180	120~160	100~130
ALMT	ALUMINUM ALLOYS BRASS ALLOYS	250~320	EH510Z	120~210	120~190	100~160
			EH520Z	120~210	120~190	100~160
ALMT	ALUMINUM ALLOYS BRASS ALLOYS	250~320	Chipbreaker preference	ESU/EUP/EEX	EUP/ENG/EEX	EMU
			Chipbreaker preference	ESU/EUP/EEX	EUP/EEX	EMU
ALMT	ALUMINUM ALLOYS BRASS ALLOYS	250~320	DA2200*	1000~10000	1000~10000	-
			DA150*	1000~10000	1000~10000	-
ALMT	ALUMINUM ALLOYS BRASS ALLOYS	250~320	EH10/20	800~1500	700~1200	700~1200
			EH510/520	800~1700	700~1400	700~1200
ALMT	ALUMINUM ALLOYS BRASS ALLOYS	250~320	G10E	800~1500	700~1600	700~1600
			Chipbreaker preference	ESU/EUP/EEX	EUP/EEX	EMU

\* Refer to the PCD section for proper running conditions of PCD grades.

# Recommended Running Conditions

General Info	Recommended first choice, Recommended second choice, Recommended third choice					
	WORK MATERIAL	HARDNESS BHn/Rc	GRADE	MACHINING PARAMETERS		
				Finishing .002~.012 IPR .005"~.100" D.O.C.	Gen. Purpose .010~.020 IPR .100"~.200" D.O.C.	Roughing .015~.030 IPR .200"~ D.O.C.
Negative Inserts	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	CUTTING SPEED (SFM)			
			DA2200*	2000~3300	2000~3300	-
Positive Inserts	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	DA150*	2000~3300	2000~3300	-
			EH10/20	800~1100	800~1000	700~900
Ace-Fix Inserts	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	EH510/520	800~1300	800~1200	700~1100
			EH10Z	1200~1500	1100~1300	900~1100
Threading, Grooving, & Cut-Off Inserts	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	EH20Z	1200~1500	1100~1300	900~1100
			EH510Z	1200~1700	1100~1500	900~1300
Ceramic Inserts	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	EH520Z	1200~1700	1100~1500	900~1300
			G10E	800~1100	800~1000	700~900
PCBN & PCD Inserts	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	DA2200*	2000~3300	2000~3300	-
			DA150*	2000~3300	2000~3300	-
Toolholders	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	EH10/20	800~900	600~750	500~650
			EH510/520	800~1100	600~950	500~850
Swiss Toolholders	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	EH10Z	900~1100	800~950	700~800
			EH20Z	900~1100	800~950	700~800
Boring Bars	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	EH510Z	900~1300	800~1150	700~1000
			EH520Z	900~1300	800~1150	700~1000
Technical Info	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	G10E	800~900	600~750	500~650
			DA2200*	2000~3300	2000~3300	-
ALMT	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	DA150*	2000~3300	2000~3300	-
			EH10/20	250~350	200~300	150~250
ALMT	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	EH510/520	250~550	200~500	150~450
			EH10Z	450~550	350~450	300~400
ALMT	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	EH20Z	450~550	350~450	300~400
			EH510Z	450~750	350~650	300~600
ALMT	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	EH520Z	450~750	350~650	300~600
			G10E	250~350	200~300	150~250
ALMT	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	DA2200*	2000~3300	2000~3300	-
			DA150*	2000~3300	2000~3300	-
ALMT	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	EH10/20	250~350	200~300	150~250
			EH510/520	250~550	200~500	150~450
ALMT	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	EH10Z	450~550	350~450	300~400
			EH20Z	450~550	350~450	300~400
ALMT	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	EH510Z	450~750	350~650	300~600
			EH520Z	450~750	350~650	300~600
ALMT	COPPER ALLOYS WROUGHT	145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782	G10E	250~350	200~300	150~250
			Chipbreaker preference	EUP/EEX	EUP/EEX	EMU

\* Refer to the PCD section for proper running conditions of PCD grades.

# Recommended Running Conditions

Recommended first choice, Recommended second choice, Recommended third choice

WORK MATERIAL	HARD-NESS BHn/Rc	GRADE	MACHINING PARAMETERS		
			Finishing .002~.012 IPR .005"~.100" D.O.C.	Gen. Purpose .010~.020 IPR .100"~.200" D.O.C.	Roughing .015~.030 IPR .200"~ D.O.C.
COPPER ALLOYS, CAST 834, 836, 938, 842, 844, 848, 852, 8545, 8955, 857, 858, 864, 867, 879, 928, 932, 934, 935, 937, 938, 939, 943, 944, 945, 953, 954, 956, 973, 974, 976, 078		CUTTING SPEED (SFM)			
		DA2200*	2000~3300	2000~3300	-
		DA150*	2000~3300	2000~3300	-
		EH10/20	1000~1200	850~1050	750~950
		EH510/520	1000~1400	850~1250	750~1150
		EH10Z	1200~1400	1050~1300	950~1200
		EH20Z	1200~1400	1050~1300	950~1200
		EH510Z	1200~1600	1050~1500	950~1400
		EH520Z	1200~1600	1050~1500	950~1400
		G10E	1000~1200	850~1050	750~950
817, 821, 833, 853, 861, 862, 865, 888, 872, 874, 875, 876, 878, 903, 905, 915, 9022, 923, 9059, 926, 927, 947, 948, 952, 955, 957, 958		DA2200*	2000~3300	2000~3300	-
		DA150*	2000~3300	2000~3300	-
		EH10/20	700~900	550~650	500~600
		EH510/520	700~1100	550~850	500~800
		EH10Z	950~1150	700~900	650~850
		EH20Z	950~1150	700~900	650~850
		EH510Z	950~1350	700~1100	650~1050
		EH520Z	950~1350	700~1100	650~1050
		G10E	700~900	550~650	500~600
		801, 803, 805, 807, 809, 811, 813, 814, 815, 818, 820, 822, 824, 825, 826, 827, 828, 863, 902, 907, 909, 910, 911, 913, 916, 917, 962, 963, 964, 966, 993		DA2200*	2000~3300
DA150*	2000~3300			2000~3300	-
EH10/20	300~400			175~300	150~250
EH510/520	300~600			175~500	150~450
EH10Z	500~650			350~525	325~475
EH20Z	500~650			325~525	325~475
EH510Z	500~850			350~725	325~675
EH520Z	500~850			325~725	325~675
G10E	300~400			175~300	150~250
Chipbreaker preference	EUP/EEX			EUP/EEX	EMU

\* Refer to the PCD section for proper running conditions of PCD grades.

# Recommended Running Conditions

Recommended first choice, Recommended second choice, Recommended third choice

WORK MATERIAL	HARD-NESS BHn/Rc	GRADE	MACHINING PARAMETERS		
			Finishing .002~.012 IPR .005"~.060" D.O.C.	Gen. Purpose .010~.020 IPR .060"~.200" D.O.C.	Roughing .015~.030 IPR .200"~ D.O.C.
GRAY CAST IRON	<220	CUTTING SPEED (SFM)			
		BN500*	600~2400	-	-
		BN600*	2000~6000	-	-
		BNS800*	2000~6000	-	-
		NS260/C	-	800~3500	800~2500
		NS30	-	800~3500	800~2500
		T2000Z	600~1400	500~1200	-
		AC300G	600~1600	500~1300	400~1000
		AC500G	800~2000	500~1400	400~1000
		AC700G	-	400~1200	400~900
	AC1000	500~2000	500~1400	400~1000	
	AC2000	-	600~1000	500~900	
	G10E	200~350	150~300	100~250	
	>220	BN500*	600~2000	-	-
		BN600*	1900~3100	-	-
		BNS800*	1900~3100	-	-
		NS260/C	-	800~3500	600~2500
		NS30	-	800~3500	600~2500
		T2000Z	500~1200	400~1000	-
		AC300G	550~1600	500~1200	450~1000
AC500G		600~1800	400~1200	400~800	
AC700G		-	300~1200	400~1000	
AC1000		650~1650	650~1200	400~1000	
DUCTILE IRON  NODULAR IRON	<220	BN500*	300~1000	-	-
		T2000Z	350~900	400~850	-
		AC300G	500~1300	500~1200	400~1000
		AC500G	400~900	400~825	400~750
		AC700G	-	500~1100	400~1000
	>220	AC1000	400~900	400~825	-
		AC2000	-	600~950	600~900
		EH20/Z	-	400~750	350~600
		BN500*	300~900	-	-
		T2000Z	330~800	330~750	-
Chipbreaker preference	AC300G	400~1000	400~900	300~800	
	AC500G	330~800	330~700	300~600	
	AC700G	-	400~900	300~800	
	AC1000	330~800	330~700	-	
	AC2000	-	500~900	450~850	
EH20/Z	-	330~650	330~600		
Chipbreaker preference		EMU/ENZ	EMU/ENZ		

\*Refer to the CBN section for proper running conditions of CBN grades.