



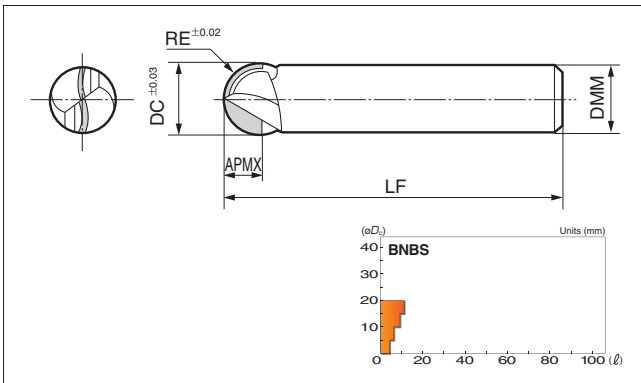
General Steel	Carbon Steel	Alloy Steel	Pre-hardened Steel	Tempered Steel	Hardened Steel	Stainless Steel	Ti Alloy (not recommended)	Cast Iron	Al Alloy	Copper Alloy	Graphite	CFRP
○	○	○	○	○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○	○	○	○	○	○



● Combination of Special Grade and Spiral Cutting Edge Design

- The combination of special SUMIBORON grade with unique spiral cutting edge design is a breakthrough for high efficiency and smooth end-milling of hardened steels.

■ Cutter Bodies



Cat. No.	Dimensions (mm)					
	Stock	Ballnose radius	Diameter	Depth of cut	Length	Shank
	BN350	RE	DC	APMX	LF	DMM
BNBS 2020S	●	1.0	2.0	1.5	50	4
2030S	●	1.5	3.0	2.0	60	6
2040S	●	2.0	4.0	3.0	70	6
2060S	●	3.0	6.0	4.5	80	6
2080S	●	4.0	8.0	5.5	90	8
BNBS 2100S	●	5.0	10.0	6.5	100	10
2120S	●	6.0	12.0	7.5	110	12
2140S		7.0	14.0	8.5	120	16
2160S		8.0	16.0	9.5	120	16
2180S		9.0	18.0	10.5	130	20
BNBS 2200S		10.0	20.0	11.5	130	20

Grade BN350

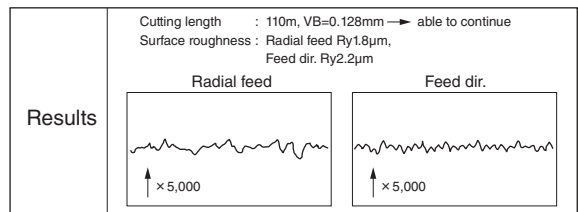
■ Recommended Cutting Conditions

Work Material	Hardened Steel (50-57HRC)		Hardened Steel (58-65HRC)	
	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)
Conditions				
R(mm)				
1.0	26,000	1,100	22,000	670
1.5	18,000	700	15,000	450
2.0	13,000	530	11,000	330
3.0	8,800	610	7,400	450
4.0	6,600	460	5,600	330
5.0	5,300	630	4,500	400
6.0	4,400	530	3,700	330
8.0	3,300	390	2,800	250
10.0	2,600	320	2,200	200
Depth of cut	a_p	$0.01D_c$	$0.01D_c$	
	p_r	$0.02D_c$	$0.02D_c$	

■ Performances

Work : SKD11 (60HRC)

BN350	
Cutting Speed	250m/min
Feed Rate	0.04mm/t
Pitch feed	0.3mm
Depth of cut	0.3mm
Tool	BNBS2100S



■ Important Notes

- (1) Use a rigid machine and select a high cutting speed with low feedrate.
- (2) Use dry cutting conditions.
- (3) Make overhang as short as possible.
- (4) If work hardness is lower than HRC50, try a coated or uncoated carbide ballnose endmill instead. (→I58)