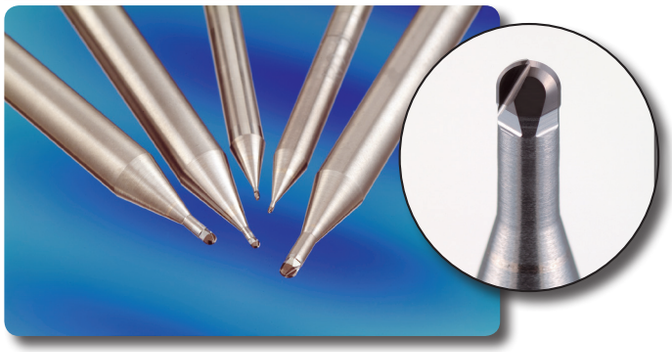
SUMIBORON ENDMILLS

Mold Finish Master BNBP Type

High Speed, High Precision SUMIBORON Mill for Pre-Hardened/Hardened Steel

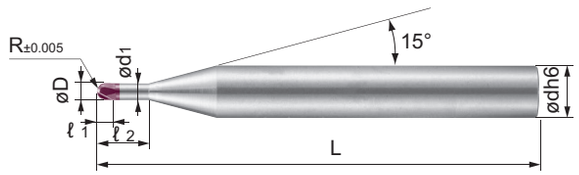
SUMIBORON MOLD FINISH MASTER



Features & Benefits

- Longer tool life in high speed, high precision machining of pre-hardened and hardened steel (~HRC70.)
- Uses SUMIBORON BN350 for excellent chipping resistance.
- High precision radial cutting edge profile accuracy of ± 0.0002 in. (0.005mm.)
- Excellent surface finish with a polishing process that is greatly reduced compared to solid carbide endmills.

BNBP Endmill Availability - METRIC



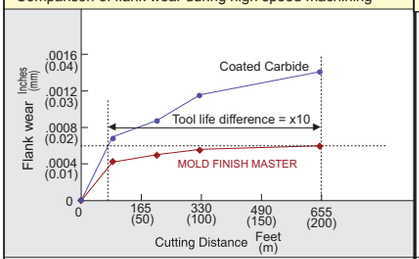
BNBP 2 R030-015 4

MOLD FINISH MASTER | # of flutes | Length from neck to tip (ℓ2) | Radius of ballnose (R) | Diameter of shank (ød)

Size	Sumitomo Cat. No.	Stock	Dimensions (mm)						
		BN350	R	øD	L	ød1	ød	ℓ1	ℓ2
ø4 Shank	BNBP2R020-0124	●	0.20	0.4	50	0.37	4.0	0.3	1.2
	BNBP2R030-0154	●	0.30	0.6	50	0.57	4.0	0.4	1.5
	BNBP2R050-0254	●	0.50	1.0	50	0.97	4.0	0.6	2.5
	BNBP2R075-0404	●	0.75	1.5	50	1.47	4.0	0.9	4.0
	BNBP2R100-0554	●	1.00	2.0	50	1.97	4.0	1.4	5.5
ø6 Shank	BNBP2R020-0126	●	0.20	0.4	50	0.37	4.0	0.3	1.2
	BNBP2R030-0156	●	0.30	0.6	50	0.57	4.0	0.4	1.5
	BNBP2R050-0256	●	0.50	1.0	50	0.97	4.0	0.6	2.5
	BNBP2R075-0406	●	0.75	1.5	50	1.47	4.0	0.9	4.0
	BNBP2R100-0556	●	1.00	2.0	50	1.97	4.0	1.4	5.5

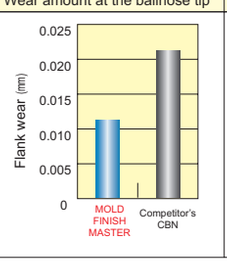
BNBP Performance

Comparison of flank wear during high speed machining

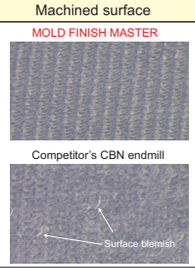


R1.0 Endmill Work: SKD11 (60HRC) N=40,000 min⁻¹
f=0.002 ipt (0.05mm/tooth) F=157 ipm (F=4,000mm/min)
Ad=0.002 in. (0.05mm) Rd=0.002 in. (0.05mm) Oil mist

Wear amount at the ballnose tip



Machined surface



R1.0 Endmill Work: SKD11(60HRC)Milling length: 100m N=20,000 min⁻¹
f=0.05mm/tooth (F=2,000mm/min) Ad=0.05mm Rd=0.05mm, Air blow

Recommended Running Conditions

Ballnose Radius mm (in)	STAVAX, NAK80, SKD61 (~52HRC)				SDK11 (~62HRC)				SKH (~70HRC)			
	RPM	Feedrate mm/tooth (ipt)	D.O.C. Ad mm (in)	D.O.C. Rd mm (in)	RPM	Feedrate mm/tooth (ipt)	D.O.C. Ad mm (in)	D.O.C. Rd mm (in)	RPM	Feedrate mm/tooth (ipt)	D.O.C. Ad mm (in)	D.O.C. Rd mm (in)
R0.2 (.008)	20,000~ 50,000	.02 (.0008)	.03 (.001)	.03 (.001)	20,000~ 50,000	.02 (.0008)	.01 (.0004)	.02 (.008)	20,000~ 50,000	.015 (.0006)	.01 (.0004)	.02 (.0008)
R0.3 (.012)	20,000~ 50,000	.02 (.0008)	.03 (.001)	.03 (.001)	20,000~ 50,000	.02 (.0008)	.01 (.0004)	.02 (.0008)	20,000~ 50,000	.015 (.0006)	.01 (.0004)	.02 (.0008)
R0.5 (.020)	20,000~ 50,000	.03 (.001)	.05 (.002)	.05 (.002)	20,000~ 50,000	.03 (.001)	.03 (.001)	.04 (.002)	20,000~ 50,000	.02 (.0008)	.02 (.0008)	.03 (.001)
R0.75 (.030)	20,000~ 50,000	.04 (.002)	.08 (.003)	0.1 (.004)	20,000~ 50,000	.04 (.002)	.05 (.002)	.05 (.002)	20,000~ 50,000	.03 (.001)	.02 (.0008)	.05 (.002)
R1.0 (.040)	20,000~ 50,000	.05 (.002)	0.1 (.004)	0.1 (.004)	17,000~ 50,000	.05 (.002)	.05 (.002)	.05 (.002)	17,000~ 50,000	.03 (.001)	.03 (.001)	.05 (.002)

NOTES:
- For stable machining, a more rigid machine is recommended.
- Air blow or oil mist coolant is recommended.
- Shorten overhang as much as possible.