

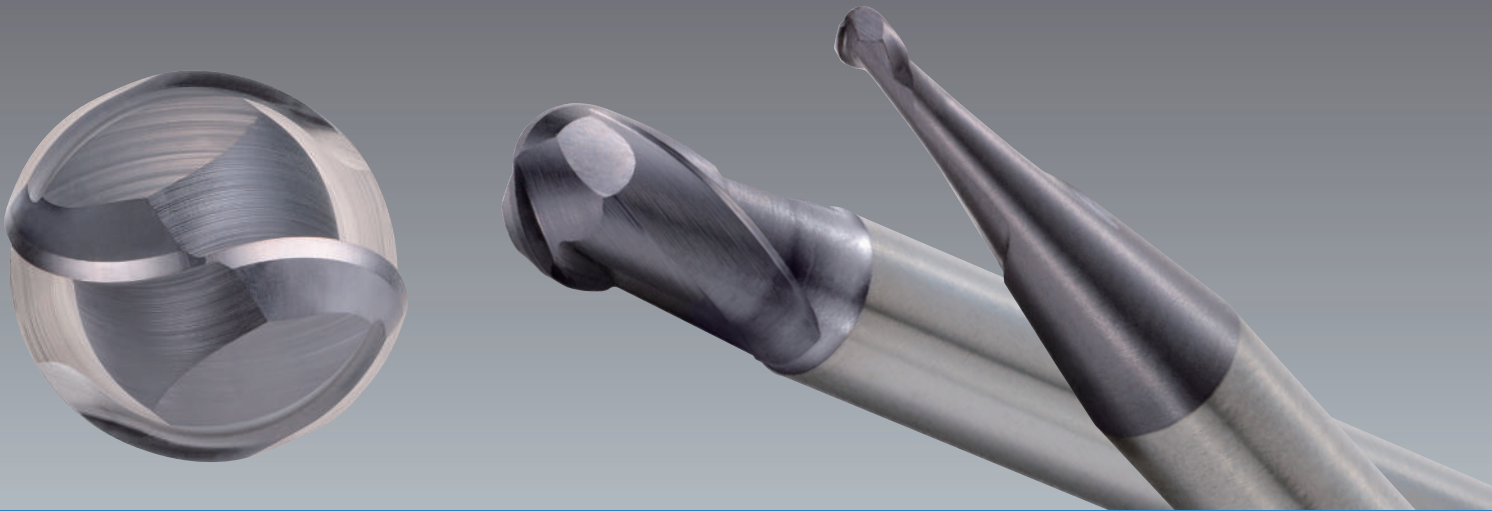
THE NEW VALUE FRONTIER



Solid End Mill | **56MB**

For Hard Material Machining Ball-nose End Mill

# 56MB



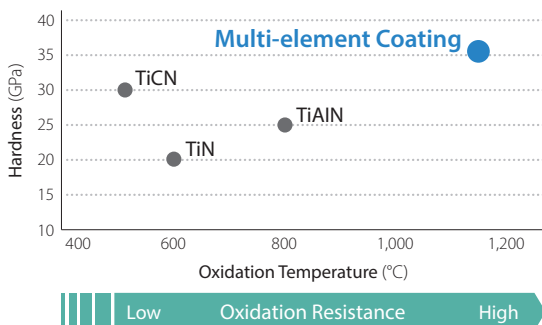
**Achieve Long Tool Life and Stable Machining for Hard Material**

**Short Length of Cut, Long Shank Type**

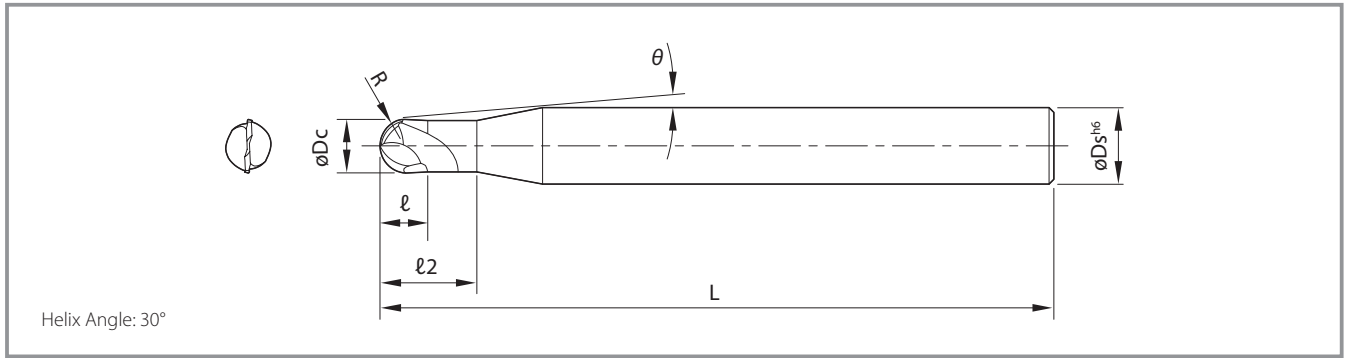
**Low Cutting Force with Unique S Curve Geometry**

**Achieve Long Tool Life with the New Multi-element Coating with Excellent Heat Resistance**

Coating Properties (In-house Evaluation)



## Lineup (Ball-nose Type)



(Unit: mm)

Description	*Code	Stock	Radius of Ball Nose	Radius of Ball Nose	Outside Dia.	Length of Cut	Under Neck Length	Shank Dia.	Inclination Angle	Overall Length	No. of Inserts
			R	Tolerance	$\phi Dc$	$\ell$	$\ell 2$	$\phi Ds$	$\theta$	L	Z
56MB010-010	91349	●	0.5	$\pm 0.013$	1	1	2	6	8°10'	76	2
56MB015-015	91350	●	0.75		1.5	1.5	3		7°45'	76	
56MB020-020	91351	●	1		2	2	4		7°10'	76	
56MB025-025	91352	●	1.25		2.5	2.5	5		6°35'	76	
56MB030-030	91353	●	1.5		3	3	6		6°	76	
56MB040-040	91354	●	2		4	4	8		4°30'	76	
56MB050-050	91355	●	2.5		5	5	10		2°30'	89	
56MB060-060	91356	●	3	$\pm 0.013$	6	6	12	6	-	89	2
56MB080-080	91357	●	4		8	8	16			102	
56MB100-100	91358	●	5		10	10	20			102	
56MB120-120	91359	●	6		12	12	24			114	
56MB160-160	91360	●	8		16	16	32			140	
56MB200-200	91361	●	10		20	20	40			165	

\*The code is a reference number that is listed on the product. When ordering, please refer to "Description" in the table.

●: Standard Stock

## Cutting Conditions

Applications	Workpiece	Depth of Cut (apxae) (mm)	Outside Dia. Dc (mm)	$\phi 1$	$\phi 1.5$	$\phi 3$	$\phi 5$	$\phi 6$	$\phi 10$	$\phi 12$	$\phi 20$
				Spindle Revolution (min <sup>-1</sup> )	Feed Rate (mm/min)	Spindle Revolution (min <sup>-1</sup> )	Feed Rate (mm/min)	Spindle Revolution (min <sup>-1</sup> )	Feed Rate (mm/min)	Spindle Revolution (min <sup>-1</sup> )	Feed Rate (mm/min)
	Pre-hardened Steel $\leq 40\text{HRC}$	0.1Dc $\times$ 0.4Dc	Spindle Revolution (min <sup>-1</sup> )	60,700	40,500	20,200	12,200	10,100	6,100	5,100	3,000
			Feed Rate (mm/min)	1,820	3,080	3,080	2,480	2,570	2,470	2,570	1,850
		0.03Dc $\times$ 0.4Dc (Finishing)	Spindle Revolution (min <sup>-1</sup> )	92,200	61,500	46,100	18,400	15,400	9,200	7,700	4,600
			Feed Rate (mm/min)	3,320	5,290	7,750	4,130	3,600	4,130	4,290	3,040
	Pre-hardened Steel $\leq 50\text{HRC}$	0.05Dc $\times$ 0.4Dc	Spindle Revolution (min <sup>-1</sup> )	72,800	48,600	24,300	14,600	12,100	7,300	6,100	3,600
			Feed Rate (mm/min)	1,890	2,720	2,820	2,210	2,360	2,210	2,320	1,570
		0.02Dc $\times$ 0.4Dc (Finishing)	Spindle Revolution (min <sup>-1</sup> )	111,600	74,400	37,200	22,300	18,600	11,200	9,300	5,600
			Feed Rate (mm/min)	3,350	4,470	4,760	3,750	3,980	3,750	3,870	2,840
	Pre-hardened Steel $\leq 60\text{HRC}$	0.04Dc $\times$ 0.4Dc	Spindle Revolution (min <sup>-1</sup> )	48,300	32,200	16,100	9,700	8,100	4,800	4,000	2,400
			Feed Rate (mm/min)	970	1,290	1,390	1,120	1,190	1,100	1,170	770
		0.01Dc $\times$ 0.4Dc (Finishing)	Spindle Revolution (min <sup>-1</sup> )	97,000	64,700	32,300	19,400	16,200	9,700	8,100	4,900
			Feed Rate (mm/min)	2,520	2,980	3,100	2,480	2,620	2,460	2,590	1,750