

Kyowa

cBN End Mills for machining hardened steels 40 – 70 HRC

- cBN (Cubic Boron Nitride) is one of the hardest materials known to man, second only to diamond
- Far outlasts carbide cutting tools in die / mold machining applications
- Unlike diamond cutting tools, cBN demonstrates increased stability at higher temperatures
- Unique spiral flute contributes to long tool life



SBBEF: Spiral Flute Ball End Mills

- Size Range: R0.1 – R1.5
- Effective Length: Flute Diameter x 3 ~ 10
- Shank Diameter: 4mm



SBREF: Spiral Flute Corner R End Mills

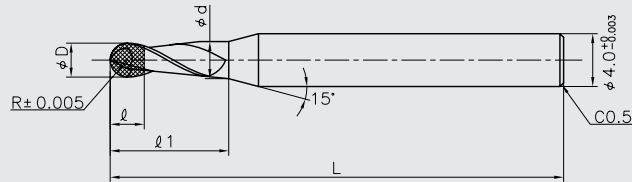
- Size Range: R0.3 – R3.0
- Effective Length: Flute Diameter x 3 ~ 10, Corner R0.03 ~ R0.5
- Shank Diameter: 4mm



cBN Ball Endmill



ATTACKSMITH SBBEF SPIRAL FLUTE BALL ENDMILL



METRIC - Shank Dia 4mm

CODE	R	FLUTE DIA D	EFFECTIVE LENGTH l1	FLUTE LENGTH l	NECK DIA φd	SHANK DIA φ	TOTAL LENGTH L
SBBEF-2010006	0.1	0.2	0.6	0.2	0.18	4	50
SBBEF-2010012			1.2	0.2			
SBBEF-2015009	0.15	0.3	0.9	0.3	0.28	4	50
SBBEF-2015018			1.8	0.3			
SBBEF-2020012	0.2	0.4	1.2	0.4	0.37	4	50
SBBEF-2020024			2.4	0.4			
SBBEF-2025015	0.25	0.5	1.5	0.5	0.46	4	50
SBBEF-2025030			3	0.5			
SBBEF-2030018	0.3	0.6	1.8	0.6	0.56	4	50
SBBEF-2030036			3.6	0.6			
SBBEF-2040024	0.4	0.8	2.4	0.8	0.76	4	50
SBBEF-2040048			4.8	0.8			
SBBEF-2050030	0.5	1	3	1	0.95	4	50
SBBEF-2050040			4	1			
SBBEF-2050050			5	1			
SBBEF-2050060			6	1			
SBBEF-2050080			8	1			
SBBEF-2050100			10	1			
SBBEF-2060036	0.6	1.2	3.6	1.2	1.15	4	50
SBBEF-2060072			7.2	1.2			
SBBEF-2070042	0.7	1.4	4.2	1.4	1.35	4	50
SBBEF-2070084			8.4	1.4			
SBBEF-2075045	0.75	1.5	4.5	1.5	1.45	4	50
SBBEF-2075090			9	1.5			

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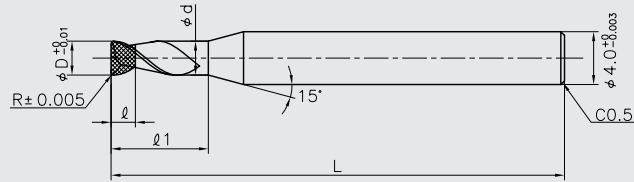
METRIC - Shank Dia 4mm CONTINUED

CODE	R	FLUTE DIA D	EFFECTIVE LENGTH l1	FLUTE LENGTH l	NECK DIA Ød	SHANK DIA Ø	TOTAL LENGTH L
SBBEF-2080048	0.8	1.6	4.8	1.5	1.55	4	50
SBBEF-2080096			9.6	1.5	1.55	4	50
SBBEF-2090054	0.9	1.8	5.4	1.5	1.75	4	50
SBBEF-2090108			10.8	1.5	1.75	4	50
SBBEF-2100060	1	2	6	1.5	1.95	4	50
SBBEF-2100120			12	1.5	1.95	4	50
SBBEF-2150090	1.5	3	9	2	2.95	4	50
SBBEF-2150180			18	2	2.95	4	60

cBN Corner R Endmill



ATTACKSMITH SBREF SPIRAL FLUTE CORNER R ENDMILL



METRIC - Shank Dia 4mm

CODE	FLUTE DIA ØD	CORNER R	EFFECTIVE LENGTH l1	FLUTE LENGTH l	NECK DIA Ød	SHANK DIA Ø	TOTAL LENGTH L	
SBREF-203003009	0.3	0.03	0.9	0.3	0.26	4	50	
SBREF-203003018			1.8	0.3	0.26	4	50	
SBREF-203005009		0.05	0.9	0.3	0.26	4	50	
SBREF-203005018			1.8	0.3	0.26	4	50	
SBREF-204003012	0.4	0.03	1.2	0.4	0.36	4	50	
SBREF-204003024			2.4	0.4	0.36	4	50	
SBREF-204010012		0.1	1.2	0.4	0.36	4	50	
SBREF-204010024			2.4	0.4	0.36	4	50	
SBREF-205003015	0.5	0.03	1.5	0.5	0.46	4	50	
SBREF-205003030			3	0.5	0.46	4	50	
SBREF-205010015		0.1	1.5	0.5	0.46	4	50	
SBREF-205010030			3	0.5	0.46	4	50	
SBREF-210003030	1	0.03	3	1	0.95	4	50	
SBREF-210003040			4	1	0.95	4	50	
SBREF-210003050			5	1	0.95	4	50	
SBREF-210003060			6	1	0.95	4	50	
SBREF-210003080			8	1	0.95	4	50	
SBREF-210003100			10	1	0.95	4	50	
SBREF-210010030		0.1	0.1	3	1	0.95	4	50
SBREF-210010040				4	1	0.95	4	50
SBREF-210010050				5	1	0.95	4	50
SBREF-210010060				6	1	0.95	4	50
SBREF-210010080			8	1	0.95	4	50	
SBREF-210010100			10	1	0.95	4	50	

cBN Corner R Endmill



ATTACKSMITH SBREF SPIRAL FLUTE CORNER R ENDMILL

METRIC - Shank Dia 4mm CONTINUED

CODE	FLUTE DIA ØD	CORNER R	EFFECTIVE LENGTH l1	FLUTE LENGTH l	NECK DIA Ød	SHANK DIA Ø	TOTAL LENGTH L
SBREF-210020030	1	0.2	3	1	0.95	4	50
SBREF-210020040			4	1	0.95	4	50
SBREF-210020050			5	1	0.95	4	50
SBREF-210020060			6	1	0.95	4	50
SBREF-210020080			8	1	0.95	4	50
SBREF-210020100			10	1	0.95	4	50
SBREF-215003045	1.5	0.03	4.5	1.5	1.45	4	50
SBREF-215003090			9	1.5	1.45	4	50
SBREF-215010045		0.1	4.5	1.5	1.45	4	50
SBREF-215010090			9	1.5	1.45	4	50
SBREF-215020045		0.2	4.5	1.5	1.45	4	50
SBREF-215020090			9	1.5	1.45	4	50
SBREF-220003060	2	0.03	6	1.5	1.95	4	50
SBREF-220003120			12	1.5	1.95	4	50
SBREF-220010060		0.1	6	1.5	1.95	4	50
SBREF-220010120			12	1.5	1.95	4	50
SBREF-220020060		0.2	6	1.5	1.95	4	50
SBREF-220020120			12	1.5	1.95	4	50
SBREF-220030060		0.3	6	1.5	1.95	4	50
SBREF-220030120			12	1.5	1.95	4	50
SBREF-230003090	3	0.03	9	2	2.95	4	50
SBREF-230003180			18	2	2.95	4	60
SBREF-230010090		0.1	9	2	2.95	4	50
SBREF-230010180			18	2	2.95	4	60
SBREF-230020090		0.2	9	2	2.95	4	50
SBREF-230020180			18	2	2.95	4	60
SBREF-230030090		0.3	9	2	2.95	4	50
SBREF-230030180			18	2	2.95	4	60
SBREF-230050090		0.5	9	2	2.95	4	50
SBREF-230050180			18	2	2.95	4	60