

Epoch21

ADVANCED  
**TH60+**  
NANO-PVD COATING

MMC Hitachi Tool

No. 441.2

# EHHB/EHHR Epoch High Hard Ball/Radius

Multi-purpose Ball Type/Corner Radius End Mill  
for High Hardened Materials up to 72HRC



**EHHB:**

- Diameter 1-12 mm
- 4 flutes
- Unequal pitch (vibration-free)

**EHHR:**

- Diameter 1-12 mm
- 4 or 6 flutes
- Peripheral clearance geometry (vibration-free)

## Ultra Micro Grain Solid Carbide End Mill

### EHHB-ATH | Epoch High Hard Ball ATH

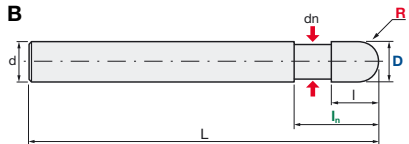
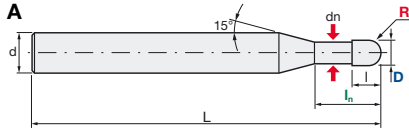
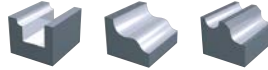
**V max**  
High Speed

**▽**  
Roughing

**▽▽**  
Semi-Finishing

**HRC**  
72

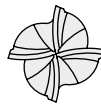
**No. of Teeth**  
4



**Carbide**  
Micro Grain

**TH60+**  
Nano-PVD Coating

**Rake Angle**  
Negative



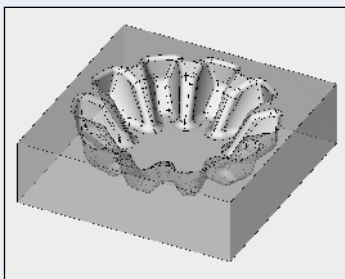
Helix angle	40°		Tolerance on R	Tolerance on D
d	h5	R 0.5-1.5	± 0.005 mm	0/-0.010 mm
		R 2-3	± 0.007 mm	0/-0.014 mm
		R 4-6	± 0.010 mm	0/-0.020 mm

ID Code	Item Code	Z	D	R	l <sub>n</sub>	l	dn	L	d	Type
EP1340	EHHB-4010-S4-ATH	4	1	0.5	3	1.5	0.95	50	4	A
EP1341	EHHB-4010-S6-ATH								6	
EP1342	EHHB-4015-S4-ATH		1.5	0.75	4.5	2.5	1.43		4	
EP1343	EHHB-4015-S6-ATH								6	
EP1344	EHHB-4020-S4-ATH		2	1	6	3	1.9		4	
EP1345	EHHB-4020-S6-ATH								6	
EP1346	EHHB-4025-S4-ATH		2.5	1.25	7.5	4	2.38	4		
EP1347	EHHB-4025-S6-ATH							6		
EP1348	EHHB-4030-S4-ATH		3	1.5	9	4.5	2.9	70	4	A
EP1349	EHHB-4030-S6-ATH								6	
EP1350	EHHB-4040-S4-ATH		4	2	12	6	3.9	70	4	B
EP1351	EHHB-4040-S6-ATH								6	
EP1352	EHHB-4050-ATH		5	2.5	15	7.5	4.7	80	6	A
EP1353	EHHB-4060-ATH		6	3	18	9	5.7	90	6	B
EP1354	EHHB-4080-ATH		8	4	24	12	7.6	100	8	
EP1355	EHHB-4100-ATH								10	
EP1356	EHHB-4120-ATH	12	6	36	18	11.5	110	12		

**NOTE:** For precise tool definition for the CAM system please download DXF data (QuickFinder) or contact your local Hitachi Tool staff for more details.

### Roughing Application EHHB-ATH

Helical Milling + Trochoid milling + Z-constant milling -> Total cutting time: 22 min.



**Work geometry**  
Size: 80x80x20mm  
Material: 1.2379 (60HRC)



Used end mill –  
less and stable wear situation



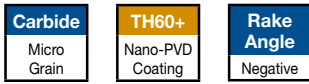
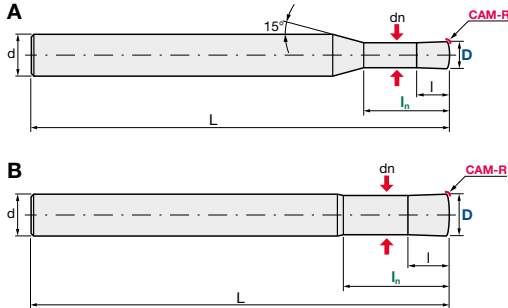
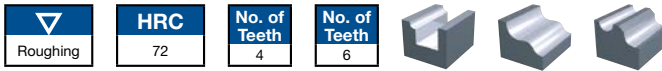
Work after roughing application

**Tool: D8 x 4Z (EHHB-4080-ATH)**

n = 5,970 min<sup>-1</sup> (V<sub>c</sub>=150m/min)  
V<sub>f</sub> = 2,860 mm/min (f<sub>z</sub>=0.12mm/tooth)  
a<sub>p</sub> = 9 mm, a<sub>e</sub> = 0.5 mm (max)  
Q = 12.9 cm<sup>3</sup>/min  
Dry Air blow, (HSK-A63), OH=32mm

Ultra Micro Grain Solid Carbide End Mill

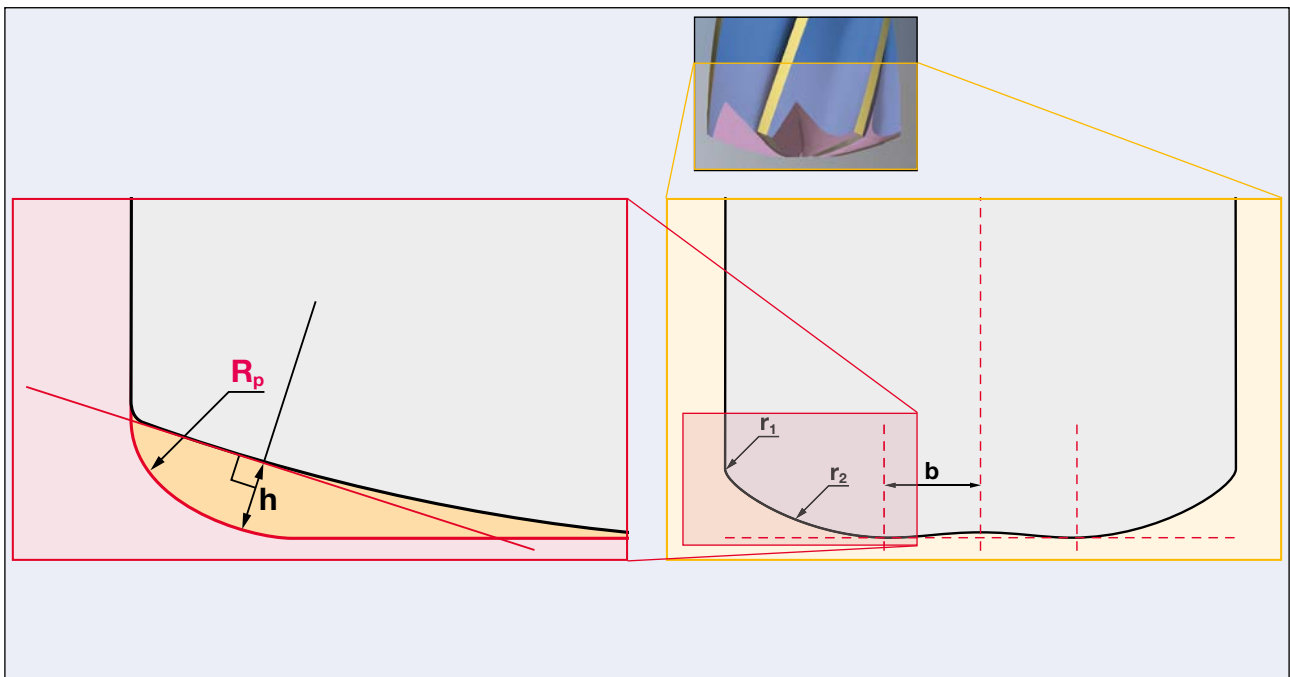
EHHR-ATH | Epoch High Hard Radius ATH



Helix angle	20°
D	(0/-0.02 mm)
d	h5

ID Code	Item Code	Z	D	CAM-R (R <sub>p</sub> )	l <sub>n</sub>	l	dn	L	d	Type	Lowest point to centre (b)	Max. remaining stock (h)				
EP1327	EHHR-4010-S4-ATH	4	1	0.134	3	1	0.95	50	4	A	0.14	0.026				
EP1328	EHHR-4010-S6-ATH		6													
EP1329	EHHR-4020-S4-ATH		2	0.194	6	2	1.9		4							
EP1330	EHHR-4020-S6-ATH		6													
EP1331	EHHR-4030-S4-ATH		3	0.328	9	3	2.9		4							
EP1332	EHHR-4030-S6-ATH		6													
EP1333	EHHR-6040-S4-ATH	6	4	0.387	12	4	3.9	60	4	B	0.56	0.136				
EP1334	EHHR-6040-S6-ATH		6													
EP1335	EHHR-6050-ATH		5	0.521	15	5	4.7		6				A	0.7	0.162	
EP1336	EHHR-6060-ATH		6	0.581	18	6	5.7									
EP1337	EHHR-6080-ATH		8	0.849	24	8	7.6		75				8	B	1.12	0.255
EP1338	EHHR-6100-ATH		10	0.968	30	10	9.5		80				10		1.4	0.340
EP1339	EHHR-6120-ATH	12	1.088	36	12	11.5	100	12	1.68	0.424						

**NOTE:** Please use CAM-R for your programming corner radius. For precise tool definition for the CAM system please download DXF data (QuickFinder) or contact your local Hitachi Tool staff for more details.



Always up to date: Please check our P50 QuickFinder



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**Product Range**

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