

Advanced
Engineering

Hitachi Tool

HITACHI
Inspire the Next

MINIATURE

ADVANCED
TH60+
NANO PVD COATING

No. 438

NEW

EPDSE Epoch Deep Square **Evolution**

For Higher Efficiency & Higher Precision Deep Milling
Micro Grain Solid Carbide End Mill



- $\varnothing D$ 0.1 ~ 6 mm
- l_n 2xD ~ 27xD
- 141 Sizes
- Higher cutting performance
- New developed compound neck shape

MINIATURE
Carbide End Mills · Nano PVD Coated

© Hitachi Tool Engineering Europe GmbH
www.high-speed-cutting.com

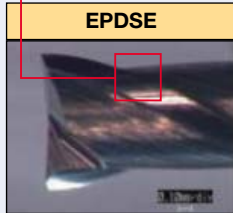
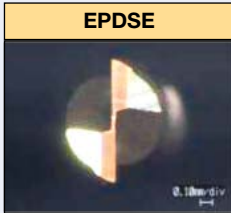


Ultra Micro Grain Solid Carbide End Mill

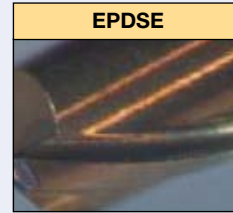
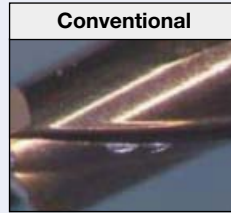
EPDSE-ATH | Epoch Deep Square Evolution ATH

Optimized strong cutting edge – Evolution in tool life

Stable cutting edge

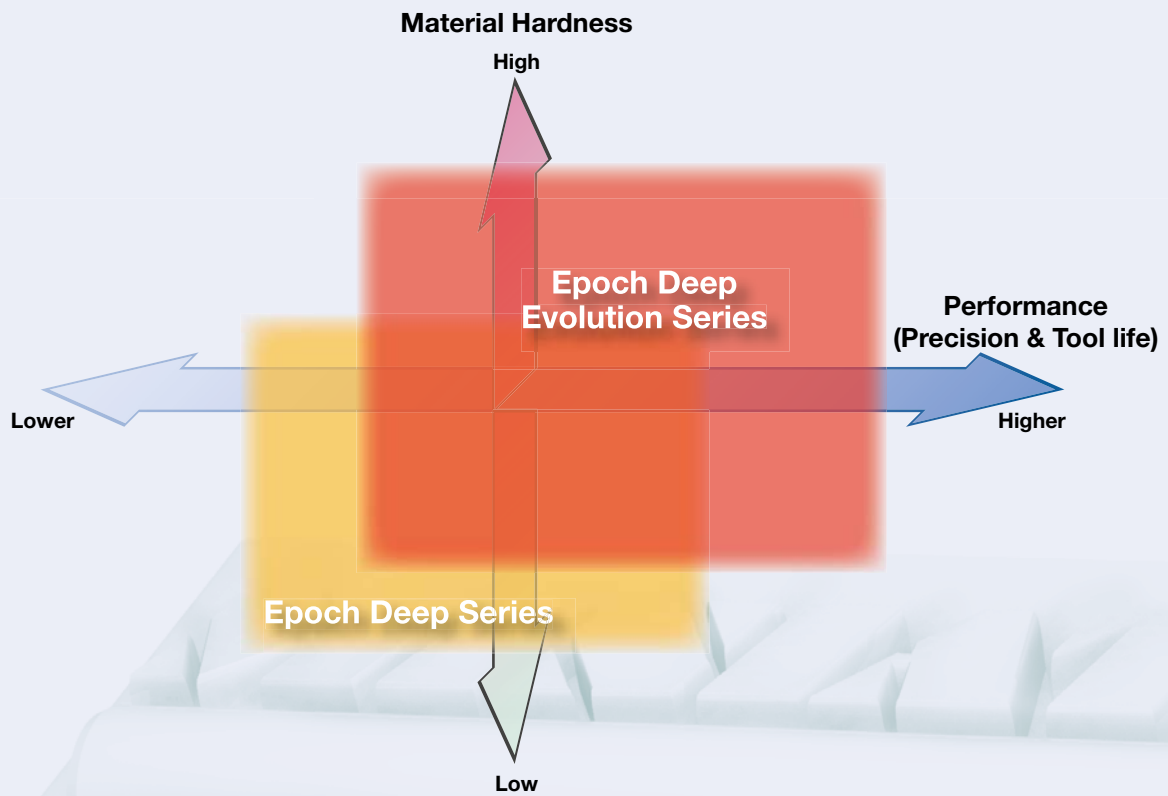


Optimized strong cutting edge reduces the risk of chipping even in aggressive cutting condition.



Cutting edge after using

Positioning of new Epoch Deep Evolution Series



Ultra Micro Grain Solid Carbide End Mill

EPDSE-ATH | Epoch Deep Square Evolution ATH

Optimized neck radius
Evolution in higher precision and higher efficiency further improves the conventional neck geometry to resist breakage and suppress deflection.

Conventional Deep Series neck shape

Large neck R range

Deep Evolution Series new neck shape

Smaller neck R range suppresses deflection

Deflection reduced by more than 20%
Static load test results
Testing tool size: $\varnothing D = 1\text{ mm}$, $l_n = 6\text{ mm}$

Deflection amount (mm)	Load (N) - New Neck Shape	Load (N) - Conventional Neck Shape
0.35	61	-
0.36	62	-
0.37	62	-
0.41	-	60
0.43	-	61

Deflection suppression effect is high even under the same load. Enables machining with even higher accuracy.

New ATH (Advanced TH) Coating – Characteristics

- Excellent adhesion strength
- Oxidation temperature: 1200°C
- Coating Hardness: 3800Hv
- Higher temperature resistance and wear resistance

TH Coating

TH Coating (Conventional)

ATH Coating

New ATH Coating for hardened steel (45HRC-65HRC)

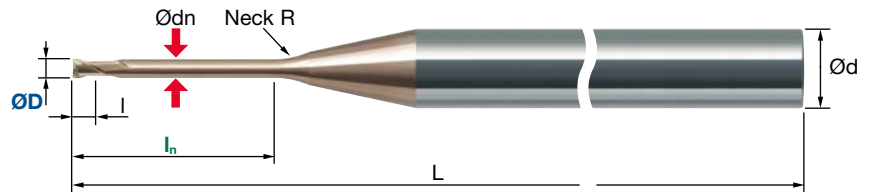
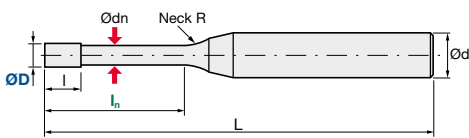
Coating	Coating Hardness (Hv)	Oxidation temp. (°C)
TiAlN	~2800	~800
TH	~3500	~1100
ATH	~3800	~1200

Ultra Micro Grain Solid Carbide End Mill

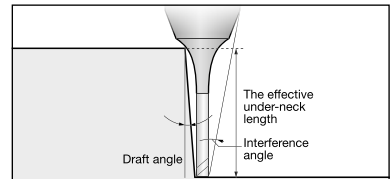
EPDSE-ATH | Epoch Deep Square Evolution ATH



A (D0.1–D5.0)



Helix angle	30°
D 0.1 – 0.5	0/-0.007 mm
D 0.6 – 0.9	0/-0.010 mm
D 1.0 – 6.0	0/-0.015 mm
Ød	h5



Size										Actual Effective Length in Incline angles				
ID Code	Item Code	Z	ØD	l _n	l	Ødn	L	Ød	Neck R	0.5°	1°	1.5°	2°	3°
EP1074	EPDSE-2001-0.3-ATH	2	0.1	0.3	0.15	0.08	45	4	1	0.46	0.49	0.51	0.53	0.58
EP1075	EPDSE-2001-0.5-ATH			0.5						0.67	0.71	0.74	0.76	0.82
EP1076	EPDSE-2001-1-ATH			1						1.2	1.25	1.29	1.33	1.39
EP1077	EPDSE-2002-0.5-ATH			0.5						0.7	0.73	0.76	0.78	0.83
EP1078	EPDSE-2002-1-ATH		1	1.22	1.27	1.31	1.34			1.42				
EP1079	EPDSE-2002-1.5-ATH		1.5	1.74	1.8	1.85	1.89			2.08				
EP1080	EPDSE-2002-2-ATH		2	2.26	2.32	2.38	2.47			2.74				
EP1081	EPDSE-2002-3-ATH		3	3.29	3.37	3.5	3.67			4.07				
EP1082	EPDSE-2003-1-ATH		1	1.32	1.39	1.45	1.51		1.62	2				
EP1083	EPDSE-2003-1.5-ATH		1.5	1.85	1.93	2.01	2.08		2.21					
EP1084	EPDSE-2003-2-ATH		2	2.37	2.47	2.56	2.64		2.78					
EP1085	EPDSE-2003-2.5-ATH		2.5	2.89	3.01	3.11	3.2		3.41					
EP1086	EPDSE-2003-3-ATH		3	3.42	3.54	3.65	3.75		4.07					
EP1087	EPDSE-2004-1-ATH		1	1.32	1.39	1.45	1.51		1.62					
EP1088	EPDSE-2004-1.5-ATH		1.5	1.85	1.93	2.01	2.08		2.21					
EP1089	EPDSE-2004-2-ATH		2	2.37	2.47	2.56	2.64		2.78					
EP1090	EPDSE-2004-2.5-ATH	2.5	2.89	3.01	3.11	3.2	3.41	4						
EP1091	EPDSE-2004-3-ATH	3	3.42	3.54	3.65	3.75	4.07							
EP1092	EPDSE-2004-3.5-ATH	3.5	3.94	4.08	4.19	4.29	4.73							
EP1093	EPDSE-2004-4-ATH	4	4.46	4.61	4.73	4.87	5.4							
EP1094	EPDSE-2004-5-ATH	5	5.49	5.66	5.79	6.06	6.72							
EP1095	EPDSE-2004-6-ATH	6	6.53	6.71	6.92	7.26	8.05							
EP1096	EPDSE-2004-8-ATH	8	8.59	8.8	9.2	9.65	10.71							
EP1097	EPDSE-2004-10-ATH	10	10.64	10.97	11.48	12.05	13.36							
EP1098	EPDSE-2005-1-ATH	1	1.32	1.39	1.45	1.51	1.62		4					
EP1099	EPDSE-2005-1.5-ATH	1.5	1.85	1.93	2.01	2.08	2.21							
EP1100	EPDSE-2005-2-ATH	2	2.37	2.47	2.56	2.64	2.78							
EP1101	EPDSE-2005-2.5-ATH	2.5	2.89	3.01	3.11	3.2	3.41							
EP1102	EPDSE-2005-3-ATH	3	3.42	3.54	3.65	3.75	4.07							
EP1103	EPDSE-2005-4-ATH	4	4.46	4.61	4.73	4.87	5.4							
EP1104	EPDSE-2005-5-ATH	5	5.49	5.66	5.79	6.06	6.72							
EP1105	EPDSE-2005-6-ATH	6	6.53	6.71	6.92	7.26	8.05							
EP1106	EPDSE-2005-8-ATH	8	8.59	8.8	9.2	9.65	10.71							
EP1107	EPDSE-2005-10-ATH	10	10.64	10.97	11.48	12.05	13.36							
EP1108	EPDSE-2006-2-ATH	2	2.54	2.7	2.84	2.96	3.19	4						
EP1109	EPDSE-2006-3-ATH	3	3.6	3.8	3.96	4.11	4.37							
EP1110	EPDSE-2006-4-ATH	4	4.66	4.89	5.07	5.24	5.53							
EP1111	EPDSE-2006-5-ATH	5	5.71	5.96	6.17	6.35	6.72							
EP1112	EPDSE-2006-6-ATH	6	6.76	7.04	7.26	7.45	8.05							
EP1113	EPDSE-2006-7-ATH	7	7.81	8.1	8.34	8.55	9.38							
EP1114	EPDSE-2006-8-ATH	8	8.85	9.17	9.42	9.65	10.71							
EP1115	EPDSE-2006-9-ATH	9	9.89	10.22	10.49	10.85	12.03							
EP1116	EPDSE-2006-10-ATH	10	10.93	11.28	11.56	12.05	13.36							

Ultra Micro Grain Solid Carbide End Mill

EPDSE-ATH | Epoch Deep Square Evolution ATH

ID Code	Item Code	Z	Size							Actual Effective Length in Incline angles										
			ØD	In	l	Ødn	L	Ød	Neck R	0.5°	1°	1.5°	2°	3°						
EP1117	EPDSE-2007-2-ATH	2	0.7	2	1.05	0.67	50				2.54	2.7	2.84	2.96	3.19					
EP1118	EPDSE-2007-4-ATH			4							4.66	4.89	5.07	5.24	5.53					
EP1119	EPDSE-2007-6-ATH			6							6.76	7.04	7.26	7.45	8.05					
EP1120	EPDSE-2007-8-ATH			8							8.85	9.17	9.42	9.65	10.71					
EP1121	EPDSE-2007-10-ATH			10							10.93	11.28	11.56	12.05	13.36					
EP1122	EPDSE-2008-4-ATH		0.8		4	1.2	0.77	55			4.66	4.89	5.07	5.24	5.53					
EP1123	EPDSE-2008-6-ATH				6						6.76	7.04	7.26	7.45	8.05					
EP1124	EPDSE-2008-8-ATH				8						8.85	9.17	9.42	9.65	10.71					
EP1125	EPDSE-2008-10-ATH				10						10.93	11.28	11.56	12.05	13.36					
EP1126	EPDSE-2008-12-ATH				12						13	13.38	13.76	14.44	16.02					
EP1127	EPDSE-2009-6-ATH		0.9		6	1.35	0.86	50			6.79	7.06	7.28	7.47	8.08					
EP1128	EPDSE-2009-8-ATH				8						8.87	9.18	9.43	9.68	10.74					
EP1129	EPDSE-2009-10-ATH				10						10.95	11.3	11.57	12.07	13.39					
EP1130	EPDSE-2009-12-ATH				12						13.02	13.4	13.79	14.47	16.05					
EP1131	EPDSE-2010-2-ATH				1							2	1.5	0.96	50			2.58	2.73	2.86
EP1132	EPDSE-2010-3-ATH		3	3.64		3.82	3.99	4.13	4.39											
EP1133	EPDSE-2010-4-ATH		4	4.69		4.91	5.09	5.26	5.54											
EP1134	EPDSE-2010-5-ATH		5	5.74		5.99	6.19	6.37	6.76											
EP1135	EPDSE-2010-6-ATH		6	6.79		7.06	7.28	7.47	8.08											
EP1136	EPDSE-2010-7-ATH		7	7.83		8.12	8.36	8.56	9.41											
EP1137	EPDSE-2010-8-ATH		8	8.87		9.18	9.43	9.68	10.74											
EP1138	EPDSE-2010-9-ATH		9	9.91		10.24	10.5	10.88	12.07											
EP1139	EPDSE-2010-10-ATH		10	10.95		11.3	11.57	12.07	13.39											
EP1140	EPDSE-2010-12-ATH		12	13.02		13.4	13.79	14.47	16.05											
EP1141	EPDSE-2010-14-ATH		14	15.09		15.49	16.07	16.86	18.7											
EP1142	EPDSE-2010-16-ATH		16	17.15		17.58	18.35	19.25	21.36											
EP1143	EPDSE-2010-20-ATH		20	21.26		21.89	22.91	24.04	26.66											
EP1144	EPDSE-2010-25-ATH		25	26.39		27.33	28.61	30.02	x											
EP1145	EPDSE-2012-6-ATH		1.2			6	1.8	1.15	50	4		4			6.81	7.08	7.29	7.48	8.11	
EP1146	EPDSE-2012-8-ATH				8	8.9					9.2		9.45	9.71	10.77					
EP1147	EPDSE-2012-10-ATH				10	10.97					11.31		11.58	12.1	13.42					
EP1148	EPDSE-2012-12-ATH				12	13.04					13.41		13.82	14.49	16.08					
EP1149	EPDSE-2012-16-ATH				16	17.16					17.59		18.38	19.28	21.39					
EP1150	EPDSE-2014-6-ATH		1.4		6	2.1	1.34	50			6.84	7.09	7.31	7.5	8.15					
EP1151	EPDSE-2014-12-ATH				12			55			13.06	13.43	13.84	14.52	16.11					
EP1152	EPDSE-2015-4-ATH	1.5						4			2.25	1.44	50			4.75	4.95	5.13	5.29	5.57
EP1153	EPDSE-2015-6-ATH							6								6.84	7.09	7.31	7.5	8.15
EP1154	EPDSE-2015-8-ATH							8								8.92	9.22	9.46	9.74	10.8
EP1155	EPDSE-2015-10-ATH		10	10.99		11.33	11.59	12.13	13.45											
EP1156	EPDSE-2015-12-ATH		12	13.06		13.43	13.84	14.52	16.11											
EP1157	EPDSE-2015-14-ATH		14	15.12		15.52	16.12	16.92	18.76											
EP1158	EPDSE-2015-16-ATH		16	17.18		17.6	18.4	19.31	21.42											
EP1159	EPDSE-2015-18-ATH		18	19.24		19.76	20.69	21.7	x											
EP1160	EPDSE-2015-20-ATH		20	21.29		21.94	22.97	24.1	x											
EP1161	EPDSE-2015-25-ATH		25	26.42		27.39	28.67	30.08	x											
EP1162	EPDSE-2015-30-ATH	30	31.53	32.83	34.37	x	x													
EP1163	EPDSE-2015-35-ATH	35	36.64	38.28	40.07	x	x													
EP1164	EPDSE-2015-40-ATH	40	41.85	43.73	45.78	x	x													
EP1165	EPDSE-2016-6-ATH	1.6		6	2.4	1.54	50			6.84	7.09	7.31	7.5	8.15						
EP1166	EPDSE-2016-8-ATH			8						8.92	9.22	9.46	9.74	10.8						
EP1167	EPDSE-2018-6-ATH	1.8		6	2.7	1.73				50			6.86	7.11	7.32	7.51	8.18			
EP1168	EPDSE-2018-8-ATH			8									8.94	9.23	9.47	9.76	10.83			
EP1169	EPDSE-2020-4-ATH	2		4	3	1.92				50			4.8	5	5.17	5.32	5.59			
EP1170	EPDSE-2020-6-ATH			6			6.88	7.13	7.34				7.52	8.21						
EP1171	EPDSE-2020-8-ATH			8			8.96	9.25	9.49				9.79	10.86						
EP1172	EPDSE-2020-10-ATH			10			11.03	11.35	11.62	12.19	13.52									
EP1173	EPDSE-2020-12-ATH			12			13.1	13.45	13.9	14.58	16.17									
EP1174	EPDSE-2020-14-ATH			14			15.16	15.54	16.18	16.97	18.83									
EP1175	EPDSE-2020-16-ATH	16	17.21	17.63	18.46	19.37	x													



Ultra Micro Grain Solid Carbide End Mill

EPDSE-ATH | Epoch Deep Square Evolution ATH

Size										Actual Effective Length in Incline angles					
ID Code	Item Code	Z	ØD	ln	l	Ødn	L	Ød	Neck R	0.5°	1°	1.5°	2°	3°	
EP1176	EPDSE-2020-18-ATH	2	2	18	3	1.92	60	4		19.27	19.81	20.74	21.76	x	
EP1177	EPDSE-2020-20-ATH			20						21.32	21.99	23.02	24.15	x	
EP1178	EPDSE-2020-25-ATH			25						26.44	27.44	28.72	x	x	
EP1179	EPDSE-2020-30-ATH			30						31.55	32.88	34.42	x	x	
EP1180	EPDSE-2020-35-ATH			35						36.69	38.33	x	x	x	
EP1181	EPDSE-2020-40-ATH			40						41.9	43.78	x	x	x	
EP1182	EPDSE-2020-50-ATH		50	52.33	54.67	x	x	x							
EP1183	EPDSE-2025-8-ATH		2.5	3.75	8	2.4	2.4	50	4		9	9.28	9.51	9.85	10.93
EP1184	EPDSE-2025-12-ATH				12						13.13	13.48	13.95	14.64	x
EP1185	EPDSE-2025-16-ATH				16						17.25	17.68	18.51	19.42	x
EP1186	EPDSE-2025-20-ATH				20						21.35	22.04	23.07	x	x
EP1187	EPDSE-2025-30-ATH				30						31.58	32.94	x	x	x
EP1188	EPDSE-2025-40-ATH				40						41.95	x	x	x	x
EP1189	EPDSE-2025-50-ATH		50	52.38	x	x	x	x							
EP1190	EPDSE-2030-8-ATH		3	4.5	8	2.88	2.88	55	4		9.04	9.31	9.54	9.91	10.99
EP1191	EPDSE-2030-12-ATH				12						13.16	13.5	14	14.69	16.3
EP1192	EPDSE-2030-16-ATH				16						17.28	17.73	18.57	19.48	21.61
EP1193	EPDSE-2030-20-ATH				20						21.38	22.09	23.13	24.26	26.91
EP1194	EPDSE-2030-25-ATH				25						26.49	27.54	28.83	30.25	x
EP1195	EPDSE-2030-30-ATH				30						31.6	32.99	34.53	36.23	x
EP1196	EPDSE-2030-40-ATH		40	42	43.88	45.94	x	x							
EP1197	EPDSE-2030-50-ATH		50	52.43	54.78	x	x	x							
EP1198	EPDSE-2040-12-ATH		4	6	12	3.85	3.85	60	6		13.21	13.54	14.08	14.78	16.39
EP1199	EPDSE-2040-16-ATH				16						17.32	17.81	18.65	19.56	x
EP1200	EPDSE-2040-20-ATH	20			21.42						22.17	23.21	24.35	x	
EP1201	EPDSE-2040-25-ATH	25			26.53						27.62	28.91	x	x	
EP1202	EPDSE-2040-30-ATH	30			31.65						33.06	34.61	x	x	
EP1203	EPDSE-2040-35-ATH	35			36.86						38.51	x	x	x	
EP1204	EPDSE-2040-40-ATH	40	42.08	43.96	x	x	x								
EP1205	EPDSE-2040-50-ATH	50	52.5	54.85	x	x	x								
EP1206	EPDSE-2050-20-ATH	5	7.5	20	4.85	4.85	70	6		21.42	22.17	x	x	x	
EP1207	EPDSE-2050-25-ATH			25						26.53	27.62	x	x	x	
EP1208	EPDSE-2050-30-ATH			30						31.65	x	x	x	x	
EP1209	EPDSE-2050-40-ATH			40						42.08	x	x	x	x	
EP1210	EPDSE-2050-50-ATH			50						52.5	x	x	x	x	
EP1211	EPDSE-2060-20-ATH			6						9	20	5.85	5.85	70	-
EP1212	EPDSE-2060-30-ATH	30	x		x	x	x	x							
EP1213	EPDSE-2060-40-ATH	40	x		x	x	x	x							
EP1214	EPDSE-2060-50-ATH	50	x		x	x	x	x							

Carbide End Mills - Nano PV

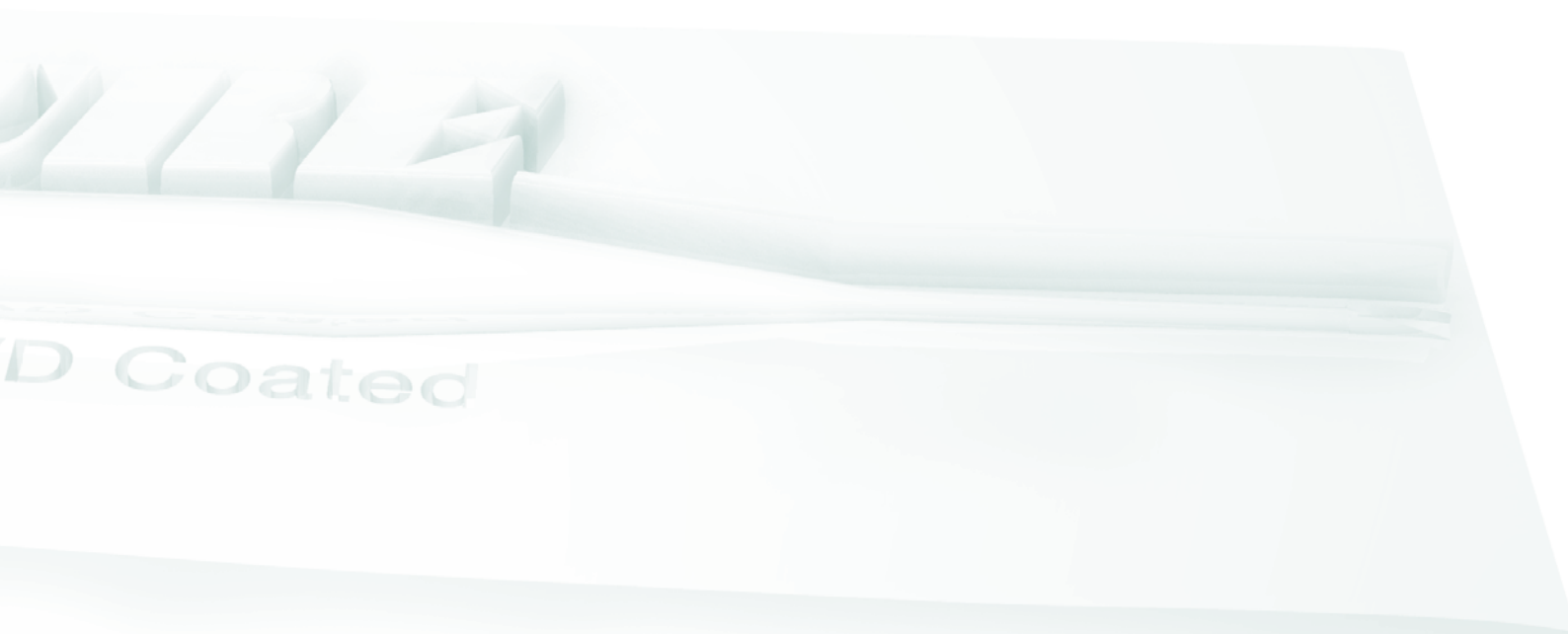


ADVANCED
TH60+
NANO-EMERALD COATING

EPDSE-ATH
Epoch Deep Square Evolution ATH

HITACHI
Inspire the Next

Ultra Micro Grain Solid Carbide End Mill



Product Range

Solid Carbide End Mills

micro**EndMill**

CBN
Cubic Boron Nitride

HD
COATING

Epoch21

MINIATURE

3D-Cut

Indexable Milling Tools

Indexable
Milling

ESM Speed End Mills
EMC Power Drills

ESM
SPEED

Milling Chucks

Milling
Chucks

Distributed by:

