EPDBE

High-Precision Ball End Mills for Deep Machining

FEATURES

Improved compound neck design for reduced chatter and increased strength

New flute shape increases resistance to breakage

Stronger R flute helix angle improves cutting performance

ATH and PN Coatings for maximum efficiency and tool life

EPDBE

INTRODUCTION

The EPDBE Epoch Series Ball End Mills have been designed for cutting deep ribs and slots in molds, as well as machining deep corners and precision features that were previously possible only by EDM (electrical discharge machining).

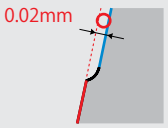
Featuring an improved compound neck design, these end mills exhibit greater breakage resistance and less vibration during high speed machining than competitors' tools. New cutting geometries as well as the advanced ATH and PN Coatings help to maximize machining performance as well as tool life.

FEATURES

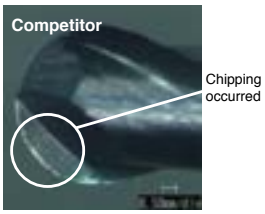
1. Innovative Ball Nose Geometry

High-strength flute shape with high chip removal characteristics. Stronger R flute helix angle improves cutting performance.

Tool : EPDBE2010-10-ATH
(R0.5 Under neck 10mm)

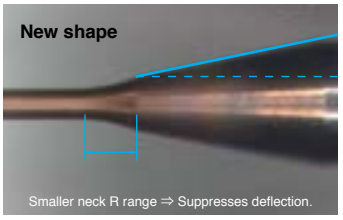


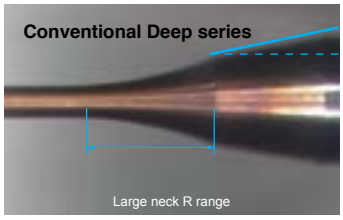
Work material: SUS420J2H 52HRC
Holder: HSK-F63
Coolant: Air Blow
n=16,000min^{-1}(*vc*=50.2m/min)
vf=1000mm/min
(*fz*=0.03mm/t)
ap×*ae*=0.02mm×0.02mm
OH=18mm



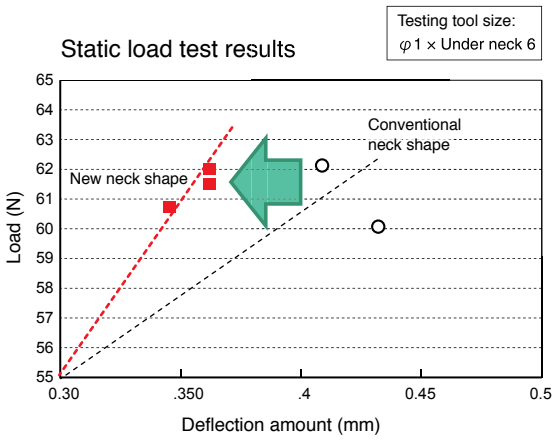
2. Improved Compound Neck Shape

Further improves the conventional compound shape of R and taper to both resist breakage and suppress deflection.





Caution: The interference region has changed due to changes in the neck shape. Be sure to check for interference before starting machining.

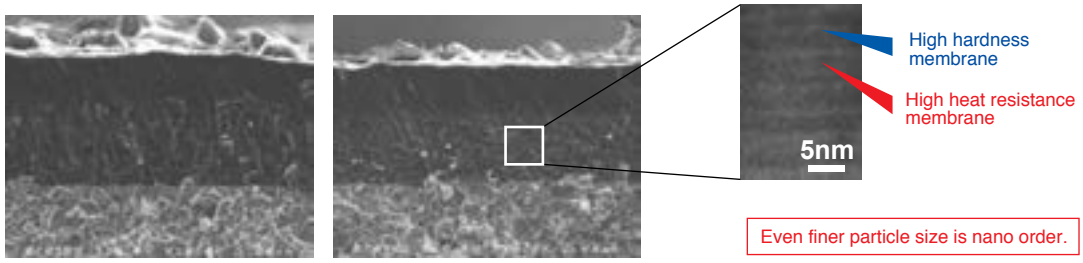


Deflection suppression effect is high even under the same load.
Enables machining with even higher accuracy.

3. New PVD Coating Technology

Advanced TH (ATH) Coating: With a hardness of 3800Hv and oxidation temperature of 1200°, our new ATH Coating enables longer life and higher efficiency when cutting high-hardness materials (55HRC or higher). Compared with our previous generation coating, double the tool life and more than double the machining efficiency can be achieved. The ATH Coating is ideal for both dry cutting and wet cutting in a variety of materials including cold-worked die steel, HSS, tool steel, composite materials, carbide alloys and more.

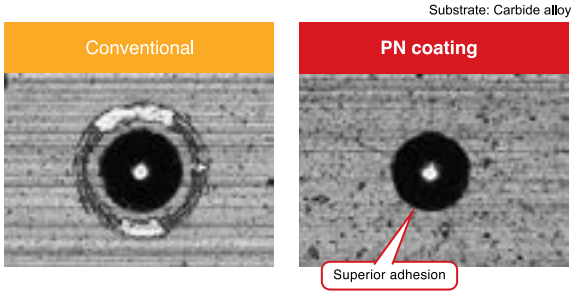
Cross-section photograph of ATH coating layer structure



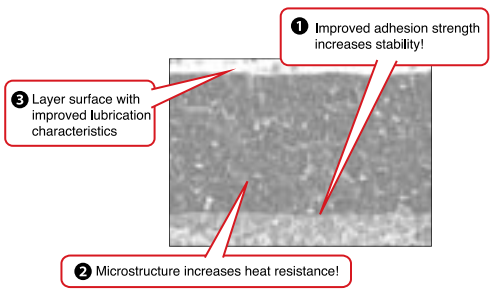
Pat.No. 3 9 3 4 1 3 6

PN Coating: By optimizing the Al content, the multi-layer PN Coating exhibits both excellent heat-resistance and adhesion to the tool substrate. Combining of the AlCr coating layer with Si produces high hardness (3000HV) as well as good wear resistance. PN Coating provides extended cutting tool life in both wet and dry machining of materials including pre-hardened steel, carbon steel, alloy steel, stainless steel, H13, D2 and more.

Adhesion of PN coating



Cross-section photograph of PN coating layer structure



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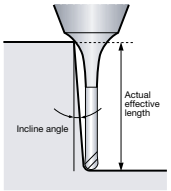

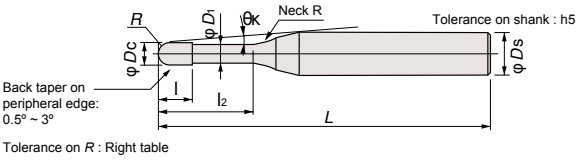

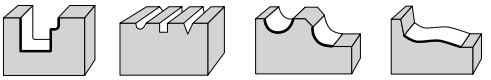

Helix Angle	30°	ϕDs	h5
R (R≤0.25)	±0.003		
R (0.25<R)	±0.005		

Part No.*	Stock PN	Stock ATH	Size (mm) R	D_c	l_2	l	D_1	L	D_s	Neck R	θk	Actual Effective Length in Incline Angles 0.5°	1°	1.5°	2°	3°
EPDBE2001-0.2-□□□	●	●	0.05	0.1	0.20	0.08	0.08	45	4	1	11.76	0.35	0.37	0.39	0.41	0.44
EPDBE2001-0.3-□□□	●	●	0.05	0.1	0.30	0.08	0.08	45	4	1	11.64	0.46	0.48	0.50	0.52	0.57
EPDBE2001-0.5-□□□	□	●	0.05	0.1	0.50	0.08	0.08	45	4	1	11.40	0.67	0.70	0.73	0.76	0.81
EPDBE2002-0.5-□□□	●	●	0.10	0.2	0.50	0.15	0.17	50	4	1	11.42	0.70	0.72	0.75	0.77	0.82
EPDBE2002-0.75-□□□	●	●	0.10	0.2	0.75	0.15	0.17	50	4	1	11.13	0.96	0.99	1.02	1.05	1.11
EPDBE2002-1-□□□	●	●	0.10	0.2	1.00	0.15	0.17	50	4	1	10.86	1.22	1.26	1.30	1.33	1.39
EPDBE2002-1.25-□□□	□	●	0.10	0.2	1.25	0.15	0.17	50	4	1	10.60	1.48	1.52	1.57	1.61	1.72
EPDBE2002-1.5-□□□	□	●	0.10	0.2	1.50	0.15	0.17	50	4	1	10.35	1.74	1.79	1.84	1.88	2.05
EPDBE2002-2-□□□	□	●	0.10	0.2	2.00	0.15	0.17	50	4	1	9.88	2.25	2.32	2.37	2.45	2.71
EPDBE2002-2.5-□□□	□	□	0.10	0.2	2.50	0.15	0.17	50	4	1	9.46	2.77	2.84	2.91	3.05	3.37
EPDBE2002-3-□□□	□	□	0.10	0.2	3.00	0.15	0.17	50	4	1	9.07	3.28	3.37	3.48	3.65	4.04
EPDBE2003-0.5-□□□	●	●	0.15	0.3	0.50	0.25	0.27	50	4	2	11.47	0.78	0.82	0.86	0.90	0.98
EPDBE2003-0.75-□□□	●	●	0.15	0.3	0.75	0.25	0.27	50	4	2	11.17	1.05	1.10	1.15	1.20	1.29
EPDBE2003-1-□□□	●	●	0.15	0.3	1.00	0.25	0.27	50	4	2	10.89	1.31	1.38	1.43	1.49	1.59
EPDBE2003-1.25-□□□	●	●	0.15	0.3	1.25	0.25	0.27	50	4	2	10.62	1.58	1.65	1.72	1.78	1.89
EPDBE2003-1.5-□□□	□	●	0.15	0.3	1.50	0.25	0.27	50	4	2	10.36	1.84	1.92	1.99	2.06	2.18
EPDBE2003-2-□□□	□	●	0.15	0.3	2.00	0.25	0.27	50	4	2	9.88	2.36	2.46	2.55	2.62	2.76
EPDBE2003-2.5-□□□	□	□	0.15	0.3	2.50	0.25	0.27	50	4	2	9.45	2.89	3.00	3.10	3.18	3.36
EPDBE2003-3-□□□	□	□	0.15	0.3	3.00	0.25	0.27	50	4	2	9.05	3.41	3.53	3.64	3.73	4.02
EPDBE2004-0.75-□□□	●	●	0.20	0.4	0.75	0.30	0.37	50	4	2	11.21	1.04	1.09	1.14	1.19	1.28
EPDBE2004-1-□□□	●	●	0.20	0.4	1.00	0.30	0.37	50	4	2	10.91	1.31	1.37	1.43	1.48	1.58
EPDBE2004-1.5-□□□	●	●	0.20	0.4	1.50	0.30	0.37	50	4	2	10.37	1.84	1.92	1.99	2.06	2.17
EPDBE2004-2-□□□	●	●	0.20	0.4	2.00	0.30	0.37	50	4	2	9.88	2.36	2.46	2.54	2.62	2.75
EPDBE2004-2.5-□□□	□	●	0.20	0.4	2.50	0.30	0.37	50	4	2	9.43	2.89	3.00	3.09	3.18	3.34
EPDBE2004-3-□□□	□	●	0.20	0.4	3.00	0.30	0.37	50	4	2	9.03	3.41	3.53	3.63	3.73	4.01
EPDBE2004-3.5-□□□	□	□	0.20	0.4	3.50	0.30	0.37	50	4	2	8.65	3.93	4.06	4.18	4.27	4.67
EPDBE2004-4-□□□	□	●	0.20	0.4	4.00	0.30	0.37	50	4	2	8.30	4.45	4.59	4.71	4.83	5.33
EPDBE2004-4.5-□□□	□	□	0.20	0.4	4.50	0.30	0.37	50	4	2	7.99	4.97	5.12	5.25	5.43	6.00
EPDBE2005-1-□□□	●	●	0.25	0.5	1.00	0.35	0.47	50	4	2	10.94	1.31	1.37	1.42	1.47	1.57
EPDBE2005-1.5-□□□	●	●	0.25	0.5	1.50	0.35	0.47	50	4	2	10.39	1.83	1.91	1.98	2.05	2.17

*For the last 3 digits of the part no. enter the coating type (PN, ATH)

□ = Stocked items in Japan

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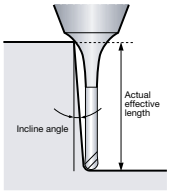

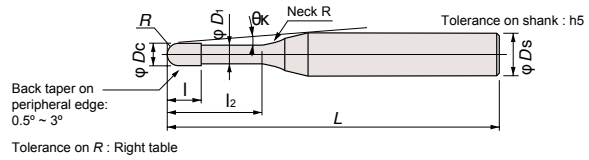

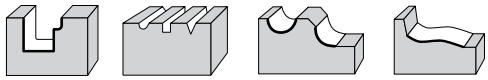

Helix Angle	30°	ϕDs	h5
R (R≤0.25)	±0.003		
R (0.25<R)	±0.005		

	Stock		Size (mm)									Actual Effective Length in Incline Angles				
Part No.*	PN	ATH	R	D_c	l_2	l	D_1	L	D_s	Neck R	θk	0.5°	1°	1.5°	2°	3°
EPDBE2005-2-□□□	●	●	0.25	0.5	2.00	0.35	0.47	50	4	2	9.88	2.36	2.45	2.54	2.61	2.75
EPDBE2005-2.5-□□□	●	●	0.25	0.5	2.50	0.35	0.47	50	4	2	9.42	2.88	2.99	3.09	3.17	3.33
EPDBE2005-3-□□□	●	●	0.25	0.5	3.00	0.35	0.47	50	4	2	9.00	3.41	3.53	3.63	3.72	3.99
EPDBE2005-4-□□□	●	●	0.25	0.5	4.00	0.35	0.47	50	4	2	8.27	4.45	4.59	4.71	4.82	5.32
EPDBE2005-5-□□□	□	●	0.25	0.5	5.00	0.35	0.47	50	4	2	7.64	5.48	5.65	5.78	6.01	6.65
EPDBE2005-5.5-□□□	□	□	0.25	0.5	5.50	0.35	0.47	50	4	2	7.36	6.00	6.17	6.31	6.61	7.31
EPDBE2005-6-□□□	□	●	0.25	0.5	6.00	0.35	0.47	50	4	2	7.10	6.52	6.70	6.88	7.21	7.97
EPDBE2005-8-□□□	□	●	0.25	0.5	8.00	0.35	0.47	50	4	2	6.23	8.58	8.79	9.16	9.60	10.63
EPDBE2006-1-□□□	●	●	0.30	0.6	1.00	0.40	0.57	50	4	4	10.98	1.44	1.54	1.63	1.71	1.88
EPDBE2006-2-□□□	●	●	0.30	0.6	2.00	0.40	0.57	50	4	4	9.88	2.52	2.66	2.79	2.91	3.13
EPDBE2006-2.5-□□□	●	●	0.30	0.6	2.50	0.40	0.57	50	4	4	9.41	3.05	3.22	3.36	3.49	3.73
EPDBE2006-3-□□□	●	●	0.30	0.6	3.00	0.40	0.57	50	4	4	8.98	3.58	3.77	3.93	4.07	4.32
EPDBE2006-3.5-□□□	□	●	0.30	0.6	3.50	0.40	0.57	50	4	4	8.58	4.12	4.32	4.49	4.64	4.91
EPDBE2006-4-□□□	□	●	0.30	0.6	4.00	0.40	0.57	50	4	4	8.22	4.64	4.86	5.04	5.20	5.48
EPDBE2006-4.5-□□□	□	□	0.30	0.6	4.50	0.40	0.57	50	4	4	7.89	5.17	5.40	5.59	5.76	6.06
EPDBE2006-5-□□□	□	●	0.30	0.6	5.00	0.40	0.57	50	4	4	7.59	5.70	5.94	6.14	6.32	6.63
EPDBE2006-5.5-□□□	□	□	0.30	0.6	5.50	0.40	0.57	50	4	4	7.31	6.22	6.48	6.69	6.87	7.29
EPDBE2006-6-□□□	□	●	0.30	0.6	6.00	0.40	0.57	50	4	4	7.04	6.75	7.02	7.23	7.42	7.96
EPDBE2006-7-□□□	□	□	0.30	0.6	7.00	0.40	0.57	50	4	4	6.57	7.79	8.08	8.32	8.52	9.28
EPDBE2006-8-□□□	□	●	0.30	0.6	8.00	0.40	0.57	50	4	4	6.16	8.84	9.15	9.40	9.61	10.61
EPDBE2006-9-□□□	□	□	0.30	0.6	9.00	0.40	0.57	50	4	4	5.79	9.88	10.21	10.47	10.79	11.94
EPDBE2006-10-□□□	□	●	0.30	0.6	10.00	0.40	0.57	50	4	4	5.47	10.92	11.26	11.54	11.99	13.27
EPDBE2006-12-□□□	□	□	0.30	0.6	12.00	0.40	0.57	50	4	4	4.92	12.99	13.37	13.72	14.38	15.92
EPDBE2007-2-□□□	□	□	0.35	0.7	2.00	0.45	0.67	50	4	4	9.88	2.52	2.66	2.79	2.90	3.12
EPDBE2007-4-□□□	□	□	0.35	0.7	4.00	0.45	0.67	50	4	4	8.18	4.64	4.86	5.04	5.20	5.48
EPDBE2007-6-□□□	□	□	0.35	0.7	6.00	0.45	0.67	50	4	4	6.98	6.74	7.01	7.23	7.42	7.94
EPDBE2007-8-□□□	□	□	0.35	0.7	8.00	0.45	0.67	50	4	4	6.09	8.83	9.14	9.39	9.61	10.60
EPDBE2008-2-□□□	●	●	0.40	0.8	2.00	0.50	0.77	50	4	4	9.87	2.51	2.65	2.78	2.89	3.11
EPDBE2008-4-□□□	●	●	0.40	0.8	4.00	0.50	0.77	50	4	4	8.14	4.64	4.85	5.03	5.19	5.47
EPDBE2008-5-□□□	●	●	0.40	0.8	5.00	0.50	0.77	50	4	4	7.48	5.69	5.93	6.13	6.31	6.61

*For the last 3 digits of the part no. enter the coating type (PN, ATH)

□ = Stocked items in Japan

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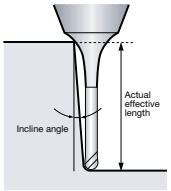

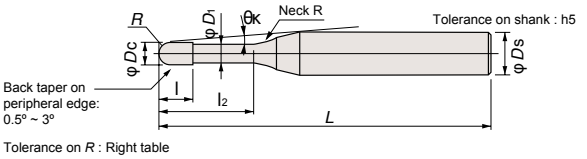

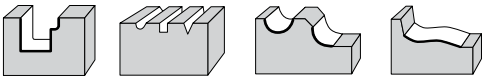

Helix Angle	30°	ϕDs	h5
R (R≤0.25)	±0.003		
R (0.25<R)	±0.005		

	Stock		Size (mm)							Neck		Actual Effective Length in Incline Angles				
Part No.*	PN	ATH	R	D_c	l_2	l	D_1	L	D_s	R	θk	0.5°	1°	1.5°	2°	3°
EPDBE2008-6-□□□	●	●	0.40	0.8	6.00	0.50	0.77	50	4	4	6.92	6.74	7.01	7.23	7.41	7.92
EPDBE2008-8-□□□	□	●	0.40	0.8	8.00	0.50	0.77	50	4	4	6.01	8.83	9.14	9.39	9.60	10.58
EPDBE2008-10-□□□	□	●	0.40	0.8	10.00	0.50	0.77	50	4	4	5.32	10.91	11.26	11.53	11.97	13.23
EPDBE2009-2-□□□	□	□	0.45	0.9	2.00	0.60	0.87	50	4	4	9.87	2.51	2.65	2.77	2.89	3.10
EPDBE2009-4-□□□	□	□	0.45	0.9	4.00	0.60	0.87	50	4	4	8.09	4.64	4.85	5.03	5.18	5.46
EPDBE2009-6-□□□	□	□	0.45	0.9	6.00	0.60	0.87	50	4	4	6.85	6.74	7.00	7.22	7.41	7.91
EPDBE2009-8-□□□	□	□	0.45	0.9	8.00	0.60	0.87	50	4	4	5.94	8.83	9.14	9.38	9.60	10.56
EPDBE2010-2-□□□	●	●	0.50	1.0	2.00	0.80	0.96	50	4	4	9.84	2.54	2.67	2.79	2.90	3.11
EPDBE2010-3-□□□	●	●	0.50	1.0	3.00	0.80	0.96	50	4	4	8.84	3.61	3.78	3.93	4.06	4.30
EPDBE2010-4-□□□	●	●	0.50	1.0	4.00	0.80	0.96	50	4	4	8.02	4.66	4.87	5.04	5.20	5.47
EPDBE2010-5-□□□	●	●	0.50	1.0	5.00	0.80	0.96	50	4	4	7.34	5.72	5.95	6.14	6.31	6.61
EPDBE2010-6-□□□	●	●	0.50	1.0	6.00	0.80	0.96	50	4	4	6.77	6.76	7.02	7.23	7.42	7.92
EPDBE2010-7-□□□	□	●	0.50	1.0	7.00	0.80	0.96	50	4	4	6.28	7.81	8.09	8.32	8.52	9.25
EPDBE2010-8-□□□	●	●	0.50	1.0	8.00	0.80	0.96	50	4	4	5.85	8.85	9.15	9.40	9.61	10.58
EPDBE2010-9-□□□	□	●	0.50	1.0	9.00	0.80	0.96	50	4	4	5.48	9.89	10.21	10.47	10.78	11.91
EPDBE2010-10-□□□	●	●	0.50	1.0	10.00	0.80	0.96	50	4	4	5.15	10.93	11.27	11.54	11.98	13.23
EPDBE2010-12-□□□	□	●	0.50	1.0	12.00	0.80	0.96	55	4	4	4.60	13.00	13.37	13.72	14.37	15.89
EPDBE2010-13-□□□	□	●	0.50	1.0	13.00	0.80	0.96	55	4	4	4.37	14.04	14.42	14.86	15.57	17.21
EPDBE2010-14-□□□	□	●	0.50	1.0	14.00	0.80	0.96	55	4	4	4.16	15.07	15.47	16.00	16.76	18.54
EPDBE2010-16-□□□	□	●	0.50	1.0	16.00	0.80	0.96	55	4	4	3.79	17.13	17.56	18.28	19.16	21.20
EPDBE2010-18-□□□	□	□	0.50	1.0	18.00	0.80	0.96	60	4	4	3.49	19.19	19.66	20.56	21.55	23.85
EPDBE2010-20-□□□	□	●	0.50	1.0	20.00	0.80	0.96	60	4	4	3.23	21.25	21.84	22.84	23.94	26.51
EPDBE2011-2-□□□	□	□	0.55	1.1	2.00	1.00	1.05	50	4	4	9.81	2.58	2.70	2.81	2.92	3.12
EPDBE2011-4-□□□	□	□	0.55	1.1	4.00	1.00	1.05	50	4	4	7.95	4.69	4.89	5.06	5.21	5.48
EPDBE2011-6-□□□	□	□	0.55	1.1	6.00	1.00	1.05	50	4	4	6.68	6.79	7.04	7.25	7.43	7.94
EPDBE2011-8-□□□	□	□	0.55	1.1	8.00	1.00	1.05	50	4	4	5.76	8.87	9.17	9.41	9.61	10.59
EPDBE2011-10-□□□	□	□	0.55	1.1	10.00	1.00	1.05	50	4	4	5.06	10.95	11.28	11.55	12.00	13.25
EPDBE2012-4-□□□	□	●	0.60	1.2	4.00	1.10	1.15	50	4	4	7.89	4.69	4.88	5.05	5.20	5.47
EPDBE2012-8-□□□	□	●	0.60	1.2	8.00	1.10	1.15	50	4	4	5.67	8.87	9.16	9.40	9.61	10.58
EPDBE2012-10-□□□	□	□	0.60	1.2	10.00	1.10	1.15	50	4	4	4.97	10.95	11.28	11.54	11.99	13.23

*For the last 3 digits of the part no. enter the coating type (PN, ATH)

□ = Stocked items in Japan

EPDBE

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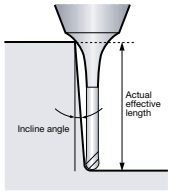

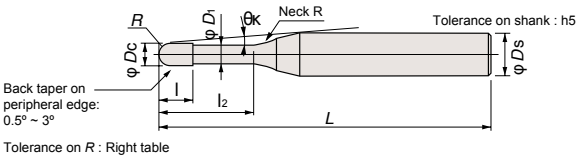

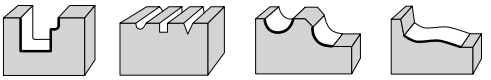

Helix Angle	30°	ϕDs	h5
R (R≤0.25)	±0.003		
R (0.25<R)	±0.005		

Part No.*	Stock PN	Stock ATH	Size (mm) R	D_c	l_2	l	D_1	L	D_s	Neck R	θk	Actual Effective Length in Incline Angles 0.5°	1°	1.5°	2°	3°
EPDBE2012-12-□□□	□	□	0.60	1.2	12.00	1.10	1.15	55	4	4	4.43	13.02	13.38	13.73	14.38	15.89
EPDBE2014-8-□□□	□	●	0.70	1.4	8.00	1.30	1.34	50	4	4	5.48	8.89	9.18	9.41	9.61	10.58
EPDBE2014-12-□□□	□	●	0.70	1.4	12.00	1.30	1.34	55	4	4	4.24	13.04	13.39	13.74	14.39	15.89
EPDBE2014-16-□□□	□	□	0.70	1.4	16.00	1.30	1.34	55	4	4	3.46	17.16	17.57	18.31	19.17	21.20
EPDBE2015-4-□□□	●	●	0.75	1.5	4.00	1.35	1.44	50	4	4	7.68	4.71	4.89	5.06	5.20	5.46
EPDBE2015-6-□□□	●	●	0.75	1.5	6.00	1.35	1.44	50	4	4	6.33	6.81	7.04	7.25	7.42	7.91
EPDBE2015-8-□□□	●	●	0.75	1.5	8.00	1.35	1.44	50	4	4	5.39	8.89	9.17	9.41	9.61	10.56
EPDBE2015-10-□□□	●	●	0.75	1.5	10.00	1.35	1.44	50	4	4	4.68	10.96	11.29	11.55	11.98	13.22
EPDBE2015-12-□□□	●	●	0.75	1.5	12.00	1.35	1.44	55	4	4	4.14	13.03	13.39	13.74	14.38	15.87
EPDBE2015-14-□□□	□	□	0.75	1.5	14.00	1.35	1.44	55	4	4	3.72	15.10	15.48	16.02	16.77	18.52
EPDBE2015-16-□□□	●	●	0.75	1.5	16.00	1.35	1.44	55	4	4	3.77	17.16	17.57	18.30	19.16	21.18
EPDBE2015-18-□□□	□	●	0.75	1.5	18.00	1.35	1.44	60	4	4	3.08	19.22	19.69	20.58	21.56	23.83
EPDBE2015-20-□□□	●	●	0.75	1.5	20.00	1.35	1.44	60	4	4	2.84	21.27	21.87	22.86	23.95	-
EPDBE2016-8-□□□	□	●	0.80	1.6	8.00	1.40	1.54	50	4	4	5.28	8.89	9.17	9.40	9.60	10.55
EPDBE2016-12-□□□	□	●	0.80	1.6	12.00	1.40	1.54	55	4	4	4.05	13.03	13.39	13.73	14.37	15.85
EPDBE2016-16-□□□	□	●	0.80	1.6	16.00	1.40	1.54	55	4	4	3.28	17.16	17.57	18.29	19.15	21.16
EPDBE2016-20-□□□	□	●	0.80	1.6	20.00	1.40	1.54	60	4	4	2.75	21.27	21.87	22.86	23.94	-
EPDBE2018-8-□□□	□	□	0.90	1.8	8.00	1.60	1.73	50	4	4	5.06	8.91	9.18	9.41	9.61	10.54
EPDBE2018-12-□□□	□	□	0.90	1.8	12.00	1.60	1.73	55	4	4	3.83	13.05	13.40	13.74	14.38	15.85
EPDBE2018-16-□□□	□	□	0.90	1.8	16.00	1.60	1.73	55	4	4	3.09	17.17	17.58	18.31	19.16	21.16
EPDBE2018-20-□□□	□	□	0.90	1.8	20.00	1.60	1.73	60	4	4	2.58	21.28	21.88	22.87	23.95	-
EPDBE2020-3-□□□	●	●	1.00	2.0	3.00	1.70	1.92	50	4	4	8.26	3.71	3.84	3.96	4.07	4.29
EPDBE2020-4-□□□	●	●	1.00	2.0	4.00	1.70	1.92	50	4	4	7.23	4.75	4.92	5.07	5.21	5.45
EPDBE2020-6-□□□	●	●	1.00	2.0	6.00	1.70	1.92	50	4	4	5.78	6.84	7.07	7.26	7.43	7.89
EPDBE2020-8-□□□	●	●	1.00	2.0	8.00	1.70	1.92	50	4	4	4.81	8.92	9.19	9.42	9.61	10.54
EPDBE2020-10-□□□	●	●	1.00	2.0	10.00	1.70	1.92	50	4	4	4.12	11.00	11.30	11.56	11.99	13.20
EPDBE2020-12-□□□	●	●	1.00	2.0	12.00	1.70	1.92	55	4	4	3.61	13.06	13.41	13.76	14.39	15.85
EPDBE2020-13-□□□	□	●	1.00	2.0	13.00	1.70	1.92	55	4	4	3.39	14.10	14.45	14.90	15.58	17.18
EPDBE2020-14-□□□	□	●	1.00	2.0	14.00	1.70	1.92	55	4	4	3.20	15.13	15.50	16.04	16.78	18.51
EPDBE2020-16-□□□	●	●	1.00	2.0	16.00	1.70	1.92	55	4	4	2.88	17.19	17.59	18.32	19.17	-

*For the last 3 digits of the part no. enter the coating type (PN, ATH)

□ = Stocked items in Japan

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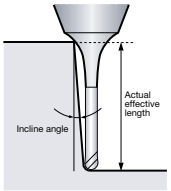

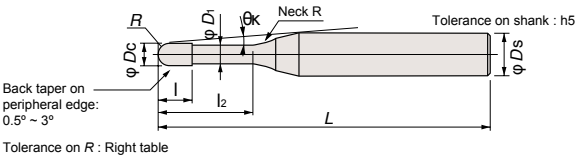

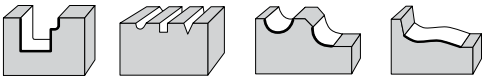

Helix Angle	30°	ϕDs	h5
R (R≤0.25)	±0.003		
R (0.25<R)	±0.005		

	Stock		Size (mm)							Neck		Actual Effective Length in Incline Angles				
Part No.*	PN	ATH	R	D_c	l_2	l	D_1	L	D_s	R	θk	0.5°	1°	1.5°	2°	3°
EPDBE2020-18-□□□	□	●	1.00	2.0	18.00	1.70	1.92	60	4	4	2.62	19.24	19.72	20.60	21.57	-
EPDBE2020-20-□□□	●	●	1.00	2.0	20.00	1.70	1.92	60	4	4	2.40	21.30	21.90	22.88	23.96	-
EPDBE2020-22-□□□	□	●	1.00	2.0	22.00	1.70	1.92	60	4	4	2.22	23.35	24.08	25.16	26.35	-
EPDBE2020-25-□□□	●	●	1.00	2.0	25.00	1.70	1.92	65	4	4	1.99	26.42	27.35	28.58	-	-
EPDBE2020-30-□□□	●	●	1.00	2.0	30.00	1.70	1.92	70	4	4	1.70	31.53	32.80	34.29	-	-
EPDBE2020-35-□□□	□	□	1.00	2.0	35.00	1.70	1.92	75	4	4	1.48	36.65	38.24	-	-	-
EPDBE2020-40-□□□	□	□	1.00	2.0	40.00	1.70	1.92	80	4	4	1.31	41.86	43.69	-	-	-
EPDBE2025-6-□□□	□	□	1.25	2.5	6.00	2.00	2.40	50	4	4	5.04	6.88	7.09	7.27	7.43	7.87
EPDBE2025-10-□□□	□	□	1.25	2.5	10.00	2.00	2.40	50	4	4	3.43	11.03	11.32	11.56	12.00	13.18
EPDBE2025-15-□□□	□	□	1.25	2.5	15.00	2.00	2.40	55	4	4	2.46	16.18	16.56	17.20	17.98	-
EPDBE2025-20-□□□	□	□	1.25	2.5	20.00	2.00	2.40	60	4	4	1.91	21.32	21.93	22.90	-	-
EPDBE2025-25-□□□	□	□	1.25	2.5	25.00	2.00	2.40	65	4	4	1.57	26.44	27.38	28.60	-	-
EPDBE2025-30-□□□	□	□	1.25	2.5	30.00	2.00	2.40	70	4	4	1.33	31.55	32.82	-	-	-
EPDBE2030-8-□□□	●	●	1.50	3.0	8.00	2.50	2.88	55	6	4	6.19	8.99	9.23	9.44	9.62	10.51
EPDBE2030-10-□□□	●	●	1.50	3.0	10.00	2.50	2.88	55	6	4	5.41	11.06	11.34	11.57	12.01	13.16
EPDBE2030-13-□□□	●	●	1.50	3.0	13.00	2.50	2.88	60	6	4	4.56	14.15	14.48	14.94	15.60	17.15
EPDBE2030-16-□□□	●	●	1.50	3.0	16.00	2.50	2.88	60	6	4	3.93	17.24	17.61	18.36	19.19	21.13
EPDBE2030-20-□□□	●	●	1.50	3.0	20.00	2.50	2.88	65	6	4	3.33	21.34	21.96	22.92	23.97	26.44
EPDBE2030-25-□□□	●	●	1.50	3.0	25.00	2.50	2.88	70	6	4	2.79	26.46	27.41	28.62	29.96	-
EPDBE2030-30-□□□	●	●	1.50	3.0	30.00	2.50	2.88	75	6	4	2.40	31.57	32.85	34.32	35.94	-
EPDBE2030-35-□□□	●	●	1.50	3.0	35.00	2.50	2.88	80	6	4	2.11	36.72	38.30	40.03	41.92	-
EPDBE2035-15-□□□	□	□	1.75	3.5	15.00	2.75	3.35	60	6	4	3.68	16.25	16.60	17.26	18.03	19.81
EPDBE2035-25-□□□	□	□	1.75	3.5	25.00	2.75	3.35	70	6	4	2.43	26.49	27.46	28.67	29.99	-
EPDBE2035-35-□□□	□	□	1.75	3.5	35.00	2.75	3.35	80	6	4	1.82	36.79	38.36	40.07	-	-
EPDBE2035-45-□□□	□	□	1.75	3.5	45.00	2.75	3.35	90	6	4	1.45	47.22	49.25	-	-	-
EPDBE2040-10-□□□	●	●	2.00	4.0	10.00	3.00	3.85	55	6	4	4.38	11.10	11.36	11.58	12.00	13.10
EPDBE2040-13-□□□	●	●	2.00	4.0	13.00	3.00	3.85	60	6	4	3.57	14.19	14.50	14.95	15.59	17.08
EPDBE2040-16-□□□	●	●	2.00	4.0	16.00	3.00	3.85	60	6	4	3.01	17.27	17.63	18.37	19.18	-
EPDBE2040-20-□□□	●	●	2.00	4.0	20.00	3.00	3.85	65	6	4	2.49	21.37	21.99	22.93	23.96	-
EPDBE2040-25-□□□	●	●	2.00	4.0	25.00	3.00	3.85	70	6	4	2.05	26.49	27.44	28.63	29.95	-

*For the last 3 digits of the part no. enter the coating type (PN, ATH)

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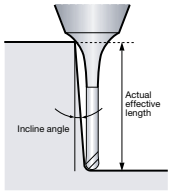

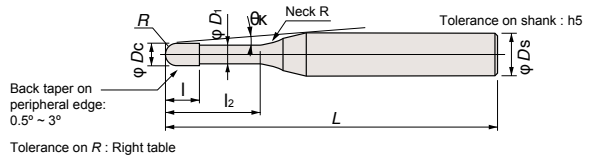

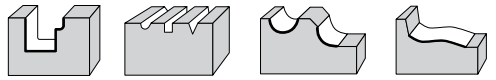

Helix Angle	30°	ϕDs	h5
R (R≤0.25)	±0.003		
R (0.25<R)	±0.005		

	Stock		Size (mm)							Neck		Actual Effective Length in Incline Angles				
Part No.*	PN	ATH	R	D_c	l_2	l	D_1	L	D_s	R	θk	0.5°	1°	1.5°	2°	3°
EPDBE2040-30-□□□	●	●	2.00	4.0	30.00	3.00	3.85	75	6	4	1.74	31.59	32.89	34.34	-	-
EPDBE2040-35-□□□	●	●	2.00	4.0	35.00	3.00	3.85	80	6	4	1.51	36.78	38.33	40.04	-	-
EPDBE2040-40-□□□	●	●	2.00	4.0	40.00	3.00	3.85	80	6	4	1.34	41.99	43.78	-	-	-
EPDBE2040-45-□□□	●	●	2.00	4.0	45.00	3.00	3.85	90	6	4	1.20	47.20	49.23	-	-	-
EPDBE2040-50-□□□	●	●	2.00	4.0	50.00	3.00	3.85	100	6	4	1.08	52.42	54.68	-	-	-
EPDBE2050-20-□□□	●	●	2.50	5.0	20.00	3.50	4.85	65	6	4	1.42	21.36	21.95	-	-	-
EPDBE2050-25-□□□	●	●	2.50	5.0	25.00	3.50	4.85	70	6	4	1.14	26.48	27.39	-	-	-
EPDBE2050-30-□□□	●	●	2.50	5.0	30.00	3.50	4.85	75	6	4	0.95	31.58	-	-	-	-
EPDBE2050-40-□□□	●	●	2.50	5.0	40.00	3.50	4.85	80	6	4	0.72	41.97	-	-	-	-
EPDBE2060-12-□□□	●	●	3.00	6.0	12.00	6.00	5.85	60	6	-	0.00	-	-	-	-	-
EPDBE2060-20-□□□	●	●	3.00	6.0	20.00	6.00	5.85	65	6	-	0.00	-	-	-	-	-
EPDBE2060-30-□□□	●	●	3.00	6.0	30.00	6.00	5.85	75	6	-	0.00	-	-	-	-	-
EPDBE2060-50-□□□	●	●	3.00	6.0	50.00	6.00	5.85	100	6	-	0.00	-	-	-	-	-

*For the last 3 digits of the part no. enter the coating type (PN, ATH)

EPDBE

EPDBE
Cutting Conditions
High Efficiency (Metric)

MOLDINO
The Edge To Innovation

				PN Coating											
										ATH Coating					
				Copper (Cu)		Carbon steels Alloy steel (180 - 250HB)		Stainless steels Tool steels (25 - 35HRC)		Pre-harden steels (35 - 45HRC)		Hardened steel (45 - 55HRC)		Hardened steel (55 - 65HRC)	
Ratio to standard depth of cut				120%		100%		90%		80%		65%		60%	
R	Mill dia.	Under neck length	a_p	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)
0.05	**0.1**	0.20	0.008	50,000	300	50,000	250	50,000	250	50,000	225	50,000	200	50,000	188
0.05	**0.1**	0.30	0.006	50,000	300	50,000	250	50,000	250	50,000	225	50,000	200	50,000	188
0.05	**0.1**	0.50	0.004	50,000	300	50,000	250	50,000	250	50,000	225	50,000	200	50,000	188
0.10	**0.2**	0.50	0.020	50,000	420	50,000	350	50,000	350	50,000	325	45,500	273	42,000	210
0.10	**0.2**	0.75	0.017	50,000	420	50,000	350	50,000	350	50,000	325	45,500	273	42,000	210
0.10	**0.2**	1.00	0.014	50,000	420	50,000	350	50,000	350	50,000	325	45,500	273	42,000	210
0.10	**0.2**	1.25	0.011	50,000	378	50,000	315	48,600	306	45,900	269	40,500	219	37,800	170
0.10	**0.2**	1.50	0.008	50,000	378	50,000	315	48,600	306	45,900	269	40,500	219	37,800	170
0.10	**0.2**	2.00	0.008	50,000	378	50,000	315	48,600	306	45,900	269	40,500	219	37,800	170
0.10	**0.2**	2.50	0.006	48,000	323	48,000	269	43,200	242	40,800	212	36,000	173	33,600	134
0.10	**0.2**	3.00	0.004	48,000	323	48,000	269	43,200	242	40,800	212	36,000	173	33,600	134
0.15	**0.3**	0.50	0.027	50,000	600	50,000	500	50,000	500	50,000	450	45,000	383	42,000	336
0.15	**0.3**	0.75	0.024	50,000	600	50,000	500	50,000	500	50,000	450	45,000	383	42,000	336
0.15	**0.3**	1.00	0.021	50,000	600	50,000	500	50,000	500	50,000	450	45,000	383	42,000	336
0.15	**0.3**	1.25	0.019	50,000	600	50,000	500	50,000	500	50,000	450	45,000	383	42,000	336
0.15	**0.3**	1.50	0.016	50,000	600	50,000	500	50,000	500	50,000	450	45,000	383	42,000	336
0.15	**0.3**	2.00	0.012	50,000	540	50,000	450	48,600	437	45,900	372	40,500	310	37,800	272
0.15	**0.3**	2.50	0.010	50,000	540	50,000	450	48,600	437	45,900	372	40,500	310	37,800	272
0.15	**0.3**	3.00	0.008	50,000	540	50,000	450	48,600	437	45,900	372	40,500	310	37,800	272
0.20	**0.4**	0.75	0.043	50,000	967	50,000	840	50,000	839	50,000	770	46,800	655	43,680	612
0.20	**0.4**	1.00	0.040	50,000	967	50,000	840	50,000	839	50,000	770	46,800	655	43,680	612
0.20	**0.4**	1.50	0.034	50,000	829	50,000	720	50,000	719	50,000	660	46,800	468	43,680	437
0.20	**0.4**	2.00	0.028	50,000	691	50,000	600	50,000	600	50,000	550	46,800	468	43,680	437
0.20	**0.4**	2.50	0.022	50,000	560	43,200	467	38,880	420	36,720	364	32,400	292	36,288	272
0.20	**0.4**	3.00	0.016	50,000	560	43,200	467	38,880	420	36,720	364	32,400	292	36,288	272
0.20	**0.4**	3.50	0.012	50,000	560	43,200	467	38,880	420	36,720	364	32,400	292	36,288	272
0.20	**0.4**	4.00	0.010	50,000	560	43,200	467	38,880	420	36,720	364	32,400	292	36,288	272
0.20	**0.4**	4.50	0.008	46,080	470	38,400	392	34,560	353	32,640	305	28,800	245	26,880	228
0.25	**0.5**	1.00	0.045	50,000	1,500	50,000	1,500	46,800	1,404	44,200	1,193	39,000	1,053	36,400	743
0.25	**0.5**	1.50	0.040	50,000	1,500	50,000	1,500	46,800	1,404	44,200	1,193	39,000	1,053	36,400	681
0.25	**0.5**	2.00	0.035	50,000	1,200	50,000	1,200	46,800	1,123	44,200	955	39,000	842	36,400	681
0.25	**0.5**	2.50	0.033	50,000	1,081	50,000	1,000	42,120	758	39,780	645	35,100	568	32,760	502
0.25	**0.5**	3.00	0.030	50,000	900	46,800	842	42,120	758	39,780	645	35,100	568	25,200	386
0.25	**0.5**	4.00	0.020	43,200	778	36,000	648	32,400	583	30,600	496	32,400	524	25,200	386
0.25	**0.5**	5.00	0.018	43,200	778	36,000	648	32,400	583	30,600	496	32,400	524	25,200	386
0.25	**0.5**	5.50	0.015	38,400	653	32,000	544	28,800	490	27,200	416	24,000	367	22,400	324
0.25	**0.5**	6.00	0.013	38,400	653	32,000	544	28,800	490	27,200	416	24,000	367	22,400	324
0.25	**0.5**	8.00	0.008	38,400	653	32,000	544	28,800	490	27,200	416	24,000	367	22,400	324
0.30	**0.6**	1.00	0.075	50,000	2,250	50,000	2,250	50,000	2,250	50,000	1,950	48,000	1,728	44,800	1,344
0.30	**0.6**	2.00	0.063	50,000	2,250	50,000	2,250	50,000	2,250	50,000	1,950	48,000	1,728	44,800	1,344
0.30	**0.6**	2.50	0.046	50,000	1,800	50,000	1,800	50,000	1,800	50,000	1,560	48,000	1,382	44,800	986

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Cutting Conditions
High Efficiency (Metric)

MOLDINO
The Edge To Innovation

				PN Coating											
										ATH Coating					
				Copper (Cu)		Carbon steels Alloy steel (180 - 250HB)		Stainless steels Tool steels (25 - 35HRC)		Pre-harden steels (35 - 45HRC)		Hardened steel (45 - 55HRC)		Hardened steel (55 - 65HRC)	
Ratio to standard depth of cut				120%		100%		90%		80%		65%		60%	
R	Mill dia.	Under neck length	a_p	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)
0.30	**0.6**	3.0	0.041	50,000	1,800	50,000	1,800	50,000	1,800	50,000	1,560	48,000	1,382	44,800	986
0.30	**0.6**	3.5	0.035	50,000	1,710	50,000	1,710	50,000	1,709	48,960	1,452	43,200	1,183	40,320	843
0.30	**0.6**	4.0	0.026	50,000	1,710	50,000	1,710	50,000	1,709	48,960	1,452	43,200	1,183	40,320	766
0.30	**0.6**	4.5	0.022	50,000	1,350	50,000	1,350	48,600	1,313	45,900	1,074	40,500	875	37,800	681
0.30	**0.6**	5.0	0.020	50,000	1,350	46,800	1,264	42,120	1,138	39,780	931	35,100	758	32,760	590
0.30	**0.6**	5.5	0.017	50,000	1,350	46,800	1,264	42,120	1,138	39,780	931	35,100	758	32,760	590
0.30	**0.6**	6.0	0.015	50,000	1,350	46,800	1,264	42,120	1,138	39,780	931	35,100	758	32,760	590
0.30	**0.6**	7.0	0.015	38,400	979	32,000	816	28,800	881	27,200	601	24,000	490	22,400	495
0.30	**0.6**	8.0	0.015	38,400	979	32,000	816	28,800	734	27,200	601	24,000	490	22,400	381
0.30	**0.6**	9.0	0.012	38,400	979	32,000	816	28,800	734	27,200	601	24,000	490	22,400	381
0.30	**0.6**	10.0	0.009	33,600	857	28,000	714	25,200	643	23,800	526	21,000	428	19,600	333
0.30	**0.6**	12.0	0.007	28,800	691	24,000	576	21,600	518	20,400	424	18,000	346	16,800	269
0.40	**0.8**	2.0	0.120	50,000	2,700	50,000	2,700	50,000	2,700	50,000	2,400	48,000	2,592	44,800	1,882
0.40	**0.8**	4.0	0.078	50,000	2,700	50,000	2,700	50,000	2,700	50,000	2,400	48,000	2,592	44,800	1,882
0.40	**0.8**	5.0	0.059	50,000	2,431	50,000	2,429	50,000	2,431	48,960	2,114	43,200	2,123	40,320	1,524
0.40	**0.8**	6.0	0.042	50,000	2,269	50,000	2,267	45,360	2,058	42,840	1,727	37,800	1,429	35,280	1,245
0.40	**0.8**	8.0	0.020	49,920	1,617	41,600	1,348	37,440	1,213	35,360	1,018	31,200	842	29,120	733
0.40	**0.8**	10.0	0.020	38,400	1,175	32,000	979	28,800	881	27,200	740	24,000	612	22,400	533
0.45	**0.9**	2.0	0.135	50,000	3,197	50,000	3,197	50,000	3,197	50,000	2,821	45,600	2,411	42,560	2,138
0.45	**0.9**	4.0	0.081	50,000	2,771	50,000	2,771	50,000	2,771	48,450	2,369	42,750	1,959	39,900	1,737
0.45	**0.9**	6.0	0.050	50,000	2,302	47,880	2,020	43,092	1,818	40,698	1,515	35,910	1,253	33,516	1,111
0.45	**0.9**	8.0	0.036	43,776	1,679	36,480	1,399	32,832	1,259	31,008	1,049	27,360	868	25,536	770
0.50	**1.0**	2.0	0.200	50,000	3,750	50,000	3,750	48,600	3,645	45,900	3,098	43,200	2,722	37,800	2,268
0.50	**1.0**	3.0	0.200	50,000	3,750	50,000	3,750	48,600	3,645	45,900	3,098	43,200	2,722	37,800	2,268
0.50	**1.0**	4.0	0.140	50,000	3,750	50,000	3,750	48,600	3,645	45,900	3,098	43,200	2,722	37,800	2,268
0.50	**1.0**	5.0	0.090	50,000	3,500	46,800	3,276	42,120	2,948	39,780	2,596	43,200	2,540	32,760	1,835
0.50	**1.0**	6.0	0.060	50,000	3,151	42,120	2,654	40,824	2,558	38,556	2,319	38,880	2,353	29,484	1,379
0.50	**1.0**	7.0	0.060	46,656	2,100	38,880	1,750	34,992	1,574	33,048	1,338	31,590	1,323	27,216	1,061
0.50	**1.0**	8.0	0.060	46,656	2,100	38,880	1,750	34,992	1,574	33,048	1,338	31,590	1,323	27,216	979
0.50	**1.0**	9.0	0.045	46,656	2,100	38,880	1,750	34,992	1,574	33,048	1,338	31,590	1,323	27,216	979
0.50	**1.0**	10.0	0.038	46,656	2,100	38,880	1,750	34,992	1,574	33,048	1,338	31,590	1,323	27,216	979
0.50	**1.0**	12.0	0.025	34,560	1,469	28,800	1,224	25,920	1,102	24,480	936	21,600	771	20,160	685
0.50	**1.0**	13.0	0.023	34,560	1,469	28,800	1,224	25,920	1,102	24,480	936	21,600	771	20,160	685
0.50	**1.0**	14.0	0.020	34,560	1,469	28,800	1,224	25,920	1,102	24,480	936	21,600	771	20,160	685
0.50	**1.0**	16.0	0.015	34,560	1,469	28,800	1,224	25,920	1,102	24,480	936	21,600	771	20,160	685
0.50	**1.0**	18.0	0.012	30,240	1,210	25,200	1,008	22,680	907	21,420	771	18,900	635	17,640	564
0.50	**1.0**	20.0	0.010	25,920	1,037	21,600	864	19,440	778	18,360	661	16,200	544	15,120	484
0.55	**1.1**	2.0	0.200	50,000	3,924	50,000	3,924	45,360	3,560	42,840	2,927	37,800	2,452	35,280	2,176
0.55	**1.1**	4.0	0.140	50,000	3,924	50,000	3,924	45,360	3,560	42,840	2,927	37,800	2,452	35,280	2,176
0.55	**1.1**	6.0	0.060	47,736	2,767	39,780	2,306	35,802	2,075	33,813	1,706	29,835	1,430	27,846	1,268
0.55	**1.1**	8.0	0.060	47,736	2,306	39,780	2,306	35,802	1,729	31,212	1,312	27,540	1,100	25,704	975
0.55	**1.1**	10.0	0.038	47,736	2,306	39,780	1,774	35,802	1,729	31,212	1,312	27,540	1,100	25,704	975

EPDBE

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				PN Coating											
										ATH Coating					
				Copper (Cu)		Carbon steels Alloy steel (180 - 250HB)		Stainless steels Tool steels (25 - 35HRC)		Pre-harden steels (35 - 45HRC)		Hardened steel (45 - 55HRC)		Hardened steel (55 - 65HRC)	
Ratio to standard depth of cut				120%		100%		90%		80%		65%		60%	
R	Mill dia.	Under neck length	a_p	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)
0.60	**1.2**	4	0.160	50,000	3,924	46,154	3,743	41,538	3,260	39,230	2,717	36,923	2,555	32,307	1,860
0.60	**1.2**	8	0.060	44,928	2,570	37,440	2,142	33,696	2,103	31,824	2,069	30,240	2,062	26,208	1,048
0.60	**1.2**	10	0.053	41,472	1,940	34,560	1,708	31,104	1,456	29,376	1,322	27,000	1,069	24,192	871
0.60	**1.2**	12	0.045	41,472	1,940	34,560	1,618	31,104	1,456	29,376	1,322	25,920	1,026	24,192	871
0.70	**1.4**	8	0.110	39,312	2,830	32,760	2,359	29,484	2,123	27,846	1,805	24,570	1,533	22,932	1,376
0.70	**1.4**	12	0.053	36,288	1,960	30,240	1,633	27,216	1,470	25,704	1,249	22,680	1,062	21,168	953
0.70	**1.4**	16	0.035	26,880	1,371	22,400	1,142	20,160	1,028	19,040	874	16,800	743	15,680	666
0.75	**1.5**	4	0.200	50,000	4,951	42,000	4,158	37,800	3,742	35,700	3,213	31,500	2,552	29,400	2,205
0.75	**1.5**	6	0.200	50,000	4,951	42,000	4,158	37,800	3,742	35,700	3,213	31,500	2,552	29,400	2,205
0.75	**1.5**	8	0.090	39,312	2,802	32,760	2,627	29,484	2,101	27,846	1,805	24,570	1,434	22,932	1,239
0.75	**1.5**	10	0.090	36,288	2,586	30,240	2,156	27,216	1,940	25,704	1,666	22,680	1,323	21,168	1,143
0.75	**1.5**	12	0.090	36,288	2,155	30,240	1,796	27,216	1,616	25,704	1,388	22,680	1,103	21,168	953
0.75	**1.5**	14	0.075	32,256	1,810	30,240	1,796	24,192	1,357	22,848	1,165	20,160	925	18,816	799
0.75	**1.5**	16	0.038	26,880	1,508	22,400	1,257	20,160	1,131	19,040	971	16,800	771	15,680	666
0.75	**1.5**	18	0.038	26,880	1,508	22,400	1,257	20,160	1,131	19,040	971	16,800	771	15,680	666
0.75	**1.5**	20	0.038	26,880	1,508	22,400	1,257	20,160	1,131	19,040	971	16,800	771	15,680	666
0.80	**1.6**	8	0.220	43,680	3,669	36,400	3,058	32,760	2,752	30,940	2,493	27,300	2,129	23,660	1,590
0.80	**1.6**	12	0.098	39,312	3,467	32,760	2,889	29,484	2,601	27,846	2,176	24,570	1,858	21,294	1,289
0.80	**1.6**	16	0.060	33,696	2,123	28,080	1,769	25,272	1,592	23,868	1,332	21,060	1,138	19,656	991
0.80	**1.6**	20	0.040	24,960	1,485	20,800	1,238	18,720	1,114	17,680	932	15,600	796	14,560	693
0.90	**1.8**	8	0.260	40,560	3,894	33,800	3,245	30,420	2,920	28,730	2,413	25,350	2,008	23,660	1,704
0.90	**1.8**	12	0.105	33,696	2,426	28,080	2,022	25,272	1,819	23,868	1,504	21,060	1,250	19,656	1,062
0.90	**1.8**	16	0.068	33,696	2,426	28,080	2,022	25,272	1,819	23,868	1,504	21,060	1,250	19,656	1,062
0.90	**1.8**	20	0.045	24,960	1,697	20,800	1,414	18,720	1,273	17,680	1,052	15,600	875	14,560	743
1.00	**2.0**	3	0.400	37,800	5,670	31,500	4,725	28,350	4,253	26,775	3,616	23,625	3,049	22,050	2,646
1.00	**2.0**	4	0.400	37,800	5,670	31,500	4,725	28,350	4,253	26,775	3,616	23,625	3,049	22,050	2,646
1.00	**2.0**	6	0.400	37,800	5,103	31,500	4,253	28,350	3,827	26,775	3,213	23,625	2,693	22,050	2,381
1.00	**2.0**	8	0.280	37,800	5,103	31,500	4,253	28,350	3,827	26,775	3,213	23,625	2,693	22,050	2,381
1.00	**2.0**	10	0.210	35,280	4,234	29,400	3,528	26,460	3,175	24,990	2,699	22,050	2,249	19,110	1,468
1.00	**2.0**	12	0.120	31,752	3,809	26,460	3,175	23,814	2,858	22,491	2,430	19,845	2,051	17,199	1,321
1.00	**2.0**	13	0.120	31,752	3,809	26,460	3,175	23,814	2,858	22,491	2,430	19,845	2,024	15,876	1,016
1.00	**2.0**	14	0.120	31,752	3,301	26,460	2,752	23,814	2,477	22,491	2,106	18,428	1,629	15,876	1,016
1.00	**2.0**	16	0.120	29,484	2,123	24,570	1,769	22,113	1,593	20,885	1,353	18,428	1,467	15,876	914
1.00	**2.0**	18	0.090	27,216	1,960	22,680	1,633	20,412	1,470	19,278	1,249	18,428	1,354	15,876	914
1.00	**2.0**	20	0.075	27,216	1,960	22,680	1,633	20,412	1,470	19,278	1,249	18,428	1,128	15,876	914
1.00	**2.0**	22	0.050	21,420	1,457	17,850	1,214	16,065	1,092	15,173	929	13,388	774	14,994	816
1.00	**2.0**	25	0.050	20,160	1,371	16,800	1,142	15,120	1,028	14,280	874	12,600	728	14,112	768
1.00	**2.0**	30	0.030	20,160	1,371	16,800	1,142	15,120	1,028	14,280	874	12,600	728	14,112	768
1.00	**2.0**	35	0.025	17,640	1,129	14,700	941	13,230	847	12,495	720	11,025	600	10,290	527
1.00	**2.0**	40	0.022	15,120	968	12,600	806	11,340	726	10,710	617	9,450	514	8,820	452

EPDBE

EPDBE
Cutting Conditions
High Efficiency (Metric)

MOLDINO
The Edge To Innovation

				PN Coating											
										ATH Coating					
				Copper (Cu)		Carbon steels Alloy steel (180 - 250HB)		Stainless steels Tool steels (25 - 35HRC)		Pre-harden steels (35 - 45HRC)		Hardened steel (45 - 55HRC)		Hardened steel (55 - 65HRC)	
Ratio to standard depth of cut				120%		100%		90%		80%		65%		60%	
R	Mill dia.	Under neck length	a_p	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)	n (RPM)	vf (mm/min)
1.25	**2.5**	6	0.500	33,300	6,075	27,750	5,063	24,975	4,556	23,588	3,797	20,813	3,088	19,425	2,531
1.25	**2.5**	10	0.340	33,300	6,075	27,750	5,063	24,975	4,556	23,588	3,797	20,813	3,088	19,425	2,531
1.25	**2.5**	15	0.150	25,974	3,411	21,645	2,842	19,481	2,558	18,398	2,132	16,234	2,023	15,152	1,421
1.25	**2.5**	20	0.120	23,976	2,624	19,980	2,186	17,982	1,968	16,983	1,640	16,234	1,445	13,986	1,093
1.25	**2.5**	25	0.098	23,976	2,360	19,980	1,967	17,982	1,770	16,983	1,475	14,985	1,200	13,986	983
1.25	**2.5**	30	0.055	17,760	1,836	14,800	1,530	13,320	1,377	12,580	1,148	11,100	933	10,360	765
1.50	**3.0**	8	0.600	28,800	6,480	24,000	5,400	21,600	4,860	20,400	4,100	18,000	3,402	16,800	3,024
1.50	**3.0**	10	0.420	28,800	6,480	24,000	5,400	21,600	4,860	20,400	4,100	18,000	3,402	16,800	3,024
1.50	**3.0**	13	0.315	26,880	4,838	22,400	4,032	20,160	3,629	19,040	3,061	16,800	2,540	15,680	2,258
1.50	**3.0**	16	0.315	26,880	4,355	22,400	3,629	20,160	3,266	19,040	2,755	16,800	2,286	14,560	1,888
1.50	**3.0**	20	0.180	22,464	3,033	18,720	2,527	16,848	2,275	15,912	1,919	14,040	1,593	12,096	1,307
1.50	**3.0**	25	0.120	22,464	3,033	18,720	2,527	16,848	2,275	15,912	1,919	14,040	1,593	12,096	1,307
1.50	**3.0**	30	0.120	20,736	2,800	17,280	2,333	15,552	2,100	14,688	1,771	12,960	1,470	12,096	1,307
1.50	**3.0**	35	0.080	15,360	1,958	12,800	1,632	11,520	1,469	10,880	1,239	9,600	1,028	10,752	1,097
1.75	**3.5**	15	0.360	21,450	4,399	17,875	3,666	16,088	3,299	15,194	2,750	13,406	2,236	12,513	1,833
1.75	**3.5**	25	0.210	17,820	2,736	14,850	2,280	13,365	2,052	12,623	1,710	11,138	1,391	10,395	1,140
1.75	**3.5**	35	0.090	17,820	2,736	14,850	2,280	13,365	2,052	12,623	1,710	11,138	1,391	10,395	1,140
1.75	**3.5**	45	0.090	13,200	1,918	11,000	1,598	9,900	1,438	9,350	1,199	8,250	975	7,700	799
2.00	**4.0**	10	0.600	20,700	6,210	17,250	5,175	15,525	4,658	14,663	3,960	12,938	3,299	12,075	2,898
2.00	**4.0**	13	0.480	20,700	6,210	17,250	5,175	15,525	4,658	14,663	3,960	12,938	3,299	12,075	2,898
2.00	**4.0**	16	0.420	20,700	6,210	17,250	5,175	15,525	4,658	14,663	3,960	12,938	3,299	12,075	2,898
2.00	**4.0**	20	0.420	17,940	4,306	14,950	3,588	13,455	3,229	12,708	2,746	11,213	2,287	10,465	2,009
2.00	**4.0**	25	0.240	16,146	3,488	13,455	2,906	12,110	2,616	11,437	2,223	10,092	2,162	9,419	1,627
2.00	**4.0**	30	0.160	14,904	2,683	12,420	2,236	11,178	2,012	10,558	1,710	9,316	1,426	8,694	1,252
2.00	**4.0**	35	0.100	14,904	2,683	12,420	2,236	11,178	2,012	10,558	1,710	9,316	1,426	8,694	1,252
2.00	**4.0**	40	0.100	14,904	2,683	12,420	2,236	11,178	2,012	10,558	1,710	9,316	1,426	8,694	1,252
2.00	**4.0**	45	0.100	11,040	1,877	9,200	1,564	8,280	1,408	7,820	1,196	6,900	997	6,440	876
2.00	**4.0**	50	0.100	11,040	1,877	9,200	1,564	8,280	1,408	7,820	1,196	6,900	997	6,440	876
2.50	**5.0**	20	0.525	15,120	5,443	12,600	4,536	11,340	4,082	10,710	3,213	9,450	2,835	8,820	2,381
2.50	**5.0**	25	0.525	14,040	5,054	11,700	3,650	10,530	3,791	9,945	2,984	8,775	2,633	8,190	2,211
2.50	**5.0**	30	0.300	12,636	4,549	10,530	2,780	9,477	3,413	8,951	2,685	7,898	2,369	7,371	1,991
2.50	**5.0**	40	0.200	11,664	2,520	9,720	2,100	8,748	1,890	8,262	1,487	7,290	1,313	6,804	1,103
3.00	**6.0**	12	0.600	16,200	6,804	13,500	5,670	12,150	5,103	11,475	4,253	10,125	3,459	9,450	2,835
3.00	**6.0**	20	0.500	15,300	5,967	12,750	4,973	11,475	4,475	10,838	3,729	9,563	3,033	8,925	2,486
3.00	**6.0**	30	0.420	12,480	3,594	10,400	2,995	9,360	2,696	8,840	2,122	7,800	2,028	7,280	1,572
3.00	**6.0**	50	0.150	10,368	2,687	8,640	2,239	7,776	2,016	7,344	1,587	6,480	1,400	6,048	1,175