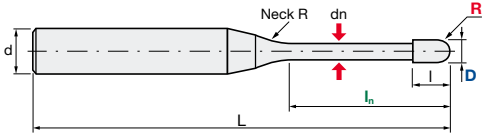
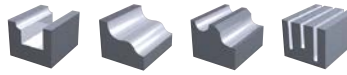




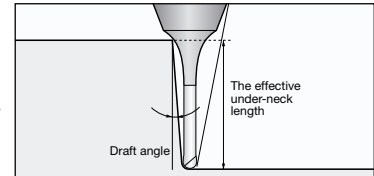
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V max High Speed	▽▽ Semi-Finishing	▽▽▽ Finishing	HRC 72	No. of Teeth 2
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Carbide Micro Grain	TH60+ Nano-PVD Coating	Rake Angle Negative
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Helix Angle	R Tol. [mm]	d Tol.
30°	+0.003 / -0.007	h4



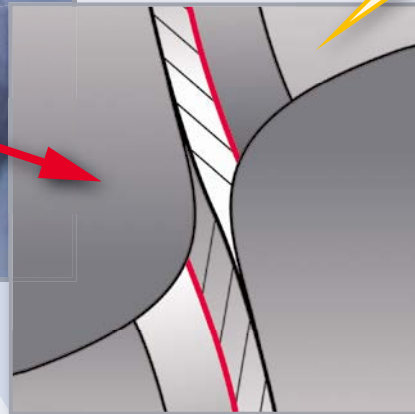
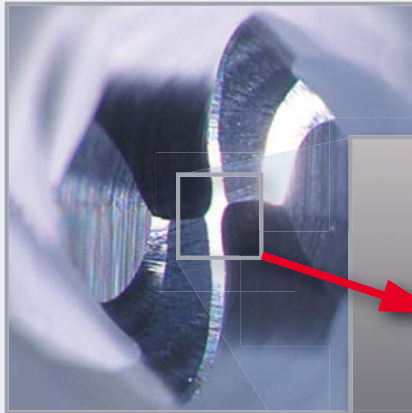
Size											Interference angle	Effective Underneck Using Length by Draft Angle				
ID Code	Item Code	Z	D	R	l _n	l	dn	L	d	Neck R		0.5°	1°	1.5°	2°	3°
EP864	EPSBE-2001-0.15-TH	2	0.1	0.05	0.15	0.08	0.08	45	4	1	11.82	0.30	0.32	0.33	0.35	0.38
EP865	EPSBE-2001-0.3-TH				0.3						11.64	0.46	0.48	0.50	0.52	0.57
EP866	EPSBE-2001-0.75-TH				0.75						11.12	0.93	0.97	1.01	1.04	1.10
EP867	EPSBE-2002-0.3-TH				0.3						11.66	0.49	0.50	0.52	0.54	0.58
EP868	EPSBE-2002-0.6-TH		0.6	11.30	0.80	0.83	0.86				0.88	0.93				
EP870	EPSBE-2002-1-TH		0.2	0.1	1	0.15	0.17				10.86	1.22	1.26	1.30	1.33	1.39
EP869	EPSBE-2002-1.5-TH				1.5						10.35	1.74	1.79	1.84	1.88	2.05
EP871	EPSBE-2002-2-TH		2	9.88	2.25	2.32	2.37				2.45	2.71				
EP872	EPSBE-2003-0.45-TH		0.3	0.15	0.45	0.25	0.27				11.53	0.73	0.77	0.80	0.84	0.91
EP873	EPSBE-2003-0.9-TH				0.9						11.00	1.21	1.27	1.32	1.37	1.47
EP874	EPSBE-2003-1.5-TH				1.5						10.36	1.84	1.92	1.99	2.06	2.18
EP875	EPSBE-2003-2-TH				2						9.88	2.36	2.46	2.55	2.62	2.76
EP876	EPSBE-2003-3-TH				3						9.05	3.41	3.53	3.64	3.73	4.02
EP877	EPSBE-2004-0.6-TH				0.6						11.39	0.88	0.93	0.97	1.01	1.09
EP878	EPSBE-2004-1.2-TH		0.4	0.2	1.2	0.3	0.37				10.69	1.52	1.59	1.65	1.71	1.82
EP879	EPSBE-2004-2-TH				2						9.88	2.36	2.46	2.54	2.62	2.75
EP881	EPSBE-2004-3-TH	3			9.03			3.41	3.53	3.63	3.73	4.01				
EP880	EPSBE-2004-3.5-TH	3.5			8.65			3.93	4.06	4.18	4.27	4.67				
EP882	EPSBE-2004-4-TH	4	8.30	4.45	4.59	4.71	4.83	5.33								
EP883	EPSBE-2005-0.75-TH	0.5	0.25	0.75	0.35	0.47	11.25	1.04	1.09	1.13	1.18	1.27				
EP884	EPSBE-2005-1.5-TH			1.5			10.39	1.83	1.91	1.98	2.05	2.17				
EP885	EPSBE-2005-3-TH			3			9.00	3.41	3.53	3.63	3.72	3.99				
EP886	EPSBE-2005-5-TH			5			7.64	5.48	5.65	5.78	6.01	6.65				
EP887	EPSBE-2006-0.9-TH	0.6	0.3	0.9	0.4	0.57	11.10	1.33	1.42	1.51	1.59	1.75				
EP888	EPSBE-2006-1.8-TH			1.8			10.08	2.30	2.44	2.56	2.68	2.88				
EP889	EPSBE-2006-3-TH			3			8.98	3.58	3.77	3.93	4.07	4.32				
EP890	EPSBE-2006-5-TH			5			7.59	5.70	5.94	6.14	6.32	6.63				
EP891	EPSBE-2006-6-TH	6	7.04	6.75	7.02	7.23	7.42	7.96								
EP892	EPSBE-2008-1.2-TH	0.8	0.4	1.2	0.5	0.77	10.79	1.65	1.75	1.84	1.93	2.11				
EP893	EPSBE-2008-2.4-TH			2.4			9.47	2.94	3.10	3.24	3.36	3.59				
EP894	EPSBE-2010-1.5-TH			1.5			11.01	2.01	2.12	2.21	2.31	2.49				
EP896	EPSBE-2010-3-TH			3			9.88	3.61	3.78	3.93	4.06	4.30				
EP897	EPSBE-2010-6-TH	1	0.5	6	0.8	0.96	8.20	6.76	7.02	7.23	7.42	7.92				
EP898	EPSBE-2010-8-TH			8			7.36	8.85	9.15	9.40	9.61	10.58				
EP895	EPSBE-2010-10-TH			10			6.68	10.93	11.27	11.54	11.98	13.23				
EP899	EPSBE-2012-1.8-TH			1.8			10.78	2.36	2.47	2.58	2.68	2.86				
EP900	EPSBE-2012-3.6-TH	1.2	0.6	3.6	1.1	1.15	9.46	4.27	4.45	4.61	4.75	5.01				
EP902	EPSBE-2015-2.25-TH			2.25			10.43	2.87	2.99	3.10	3.20	3.40				
EP903	EPSBE-2015-4.5-TH			4.5			8.84	5.24	5.43	5.61	5.76	6.03				
EP904	EPSBE-2015-8-TH			8			7.14	8.89	9.17	9.41	9.61	10.56				
EP901	EPSBE-2015-12-TH	1.5	0.75	12	1.35	1.44	50	5.85	13.03	13.39	13.74	14.38	15.87			
EP908	EPSBE-2020-3-TH			3			9.79	3.71	3.84	3.96	4.07	4.29				
EP909	EPSBE-2020-6-TH			6			7.81	6.84	7.07	7.26	7.43	7.89				
EP910	EPSBE-2020-8-TH			8			6.88	8.92	9.19	9.42	9.61	10.54				
EP905	EPSBE-2020-12-TH	2	1	12	1.7	1.92	50	5.55	13.06	13.41	13.76	14.39	15.85			
EP906	EPSBE-2020-16-TH			16			4.65	17.19	17.59	18.32	19.17	21.16				
EP907	EPSBE-2020-20-TH			20			55	4.01	21.30	21.90	22.88	23.96	26.47			

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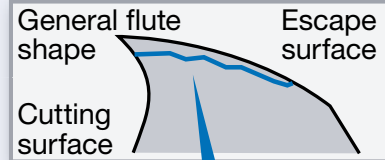
THE EFFECT OF FLUTE SHAPE, MATERIAL AND COATING:



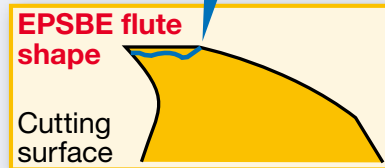
DOUBLE-FACE EFFECT OF NEW SHAPE PREVENTS SHAPE FROM DETERIORATING



By creating two faces on the escape surface, the first surface has the effect of stopping wear.



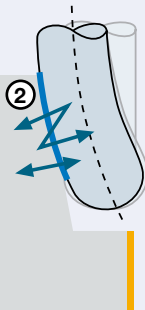
Direction of wear progress



Advanced Technology – Back Draft Effect

Standard

① Conventional

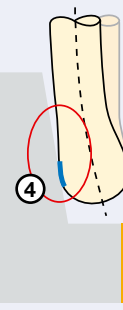


ADVANCED BY BACK DRAFT

1. **Conventional:** More contact between cutter and work piece due to deflection
2. More contact between cutter and work piece stimulate the vibration characteristic
3. **MMC Hitachi Tool Technology:** Featured with the MMC Hitachi Tool patented "Back Draft" Geometry, which can effectively avoid excessive contact between cutter and work piece, and guarantees stable process especially in deep geometry applications
4. Shorter contact length between cutter and work piece

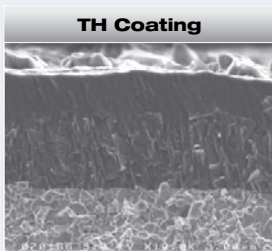
EPSBE-ATH

③ MMC Hitachi Tool Technology

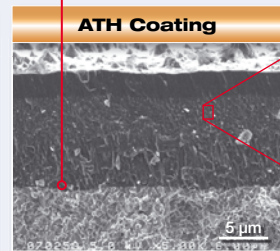


ATH (Advanced TH) Coating – Characteristics

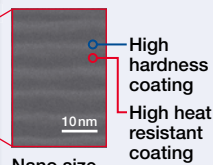
- Excellent adhesion strength
- Oxidation temperature: 1200°C
- Coating Hardness: 3800Hv
- Higher temperature resistance and wear resistance



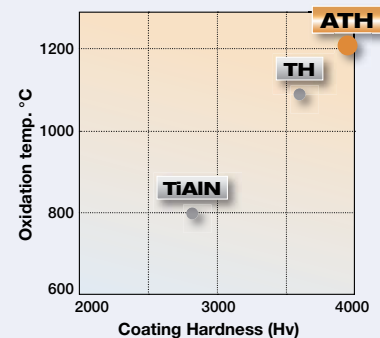
TH Coating (Conventional)



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

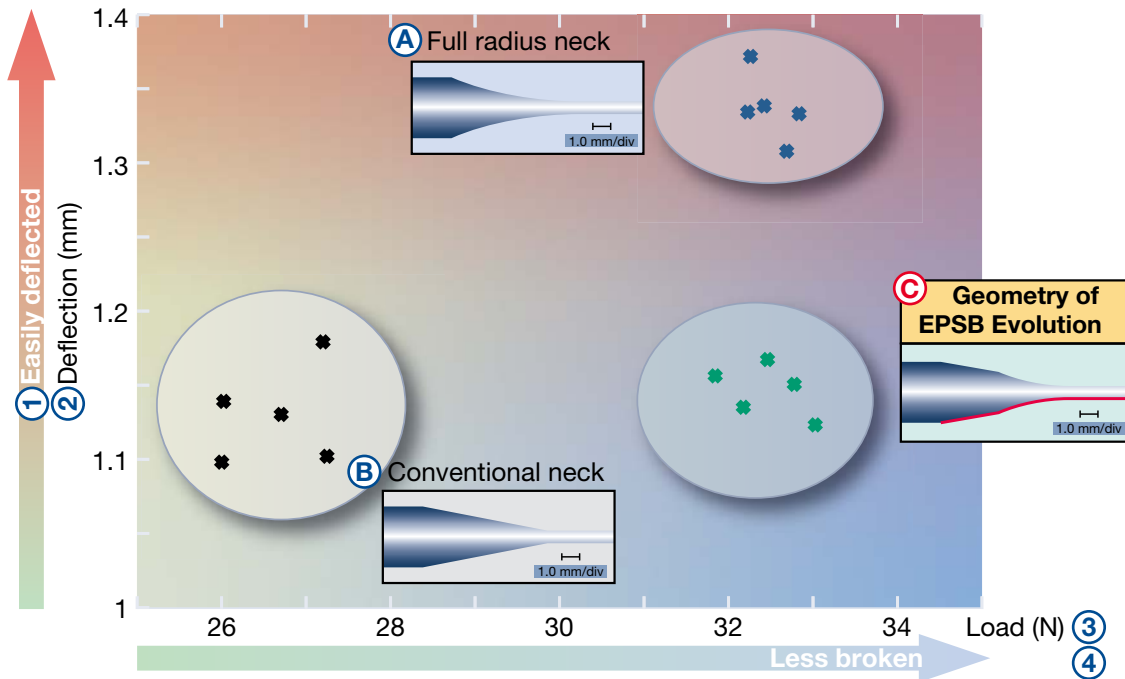


Nano size composite with atomic structure level



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COMPARISON OF BREAKAGE IN NECK GEOMETRIES



VERGLEICH DER BIEGEBRUCHFESTIGKEIT BEI UNTERSCHIEDLICHEN SCHAFT-GEOMETRIEN

- 1) Höhere Biegeanfälligkeit
- 2) Biegung (mm)
- 3) Kraft (N)
- 4) Geringere Bruchanfälligkeit
- (A) Voll-Radius Geometrie
- (B) Konventionelle Geometrie
- (C) Geometrie der EPSB Evolution-Serie

COMPARAZIONE TRA GEOMETRIE DI RASTREMAZIONE E ROTTURA

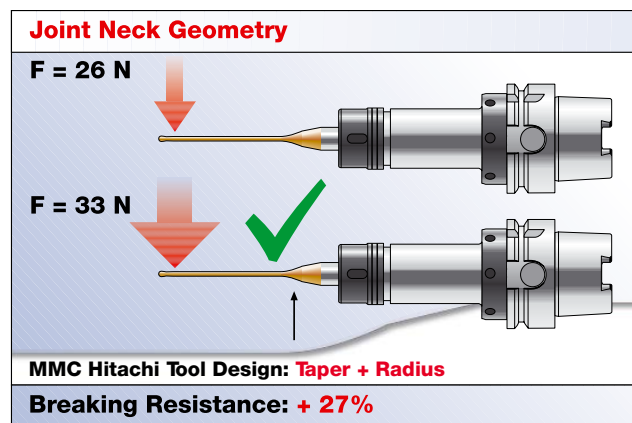
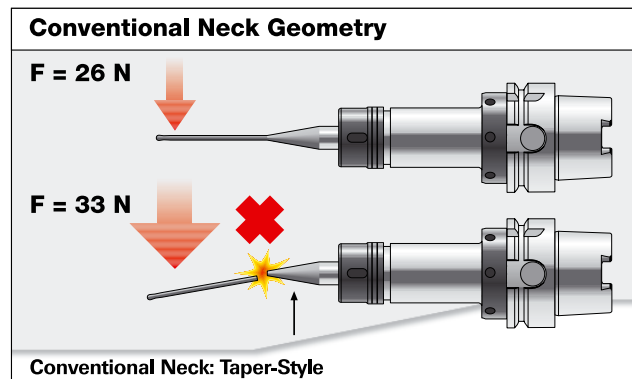
- 1) Alta resistenza alla flessione
- 2) Flessione
- 3) Carico (N)
- 4) Alta resistenza alla rottura
- (A) Rastremazione raggiata
- (B) Rastremazione convenzionale
- (C) Geometria EPSB Evolution

COMPARACIÓN DE LA ROTURA SEGÚN LA GEOMETRÍA DEL CUELLO

- 1) Flexa con facilidad
- 2) Flexión (mm)
- 3) Carga (N)
- 4) Menor rotura
- (A) Cuello de radio
- (B) Cuello convencional
- (C) Geometría EPSB Evolution

COMPARAISON DE BRIS DANS LA GÉOMÉTRIE DU DÉGAGEMENT

- 1) Facilement flexible
- 2) Battement (mm)
- 3) Charge (N)
- 4) Moins de bris
- (A) Rayon renforcé
- (B) Dégagement conventionnelle
- (C) Géométrie EPSB Evolution



COMPARAÇÃO DE ROTURA NA GEOMETRIA DE RESPIGA

- 1) Facilidade de flexão
- 2) Flexão (mm)
- 3) Carga (N)
- 4) Menor rotura
- (A) Respiga de raio completo
- (B) Respiga convencional
- (C) Geometria EPSB Evolution