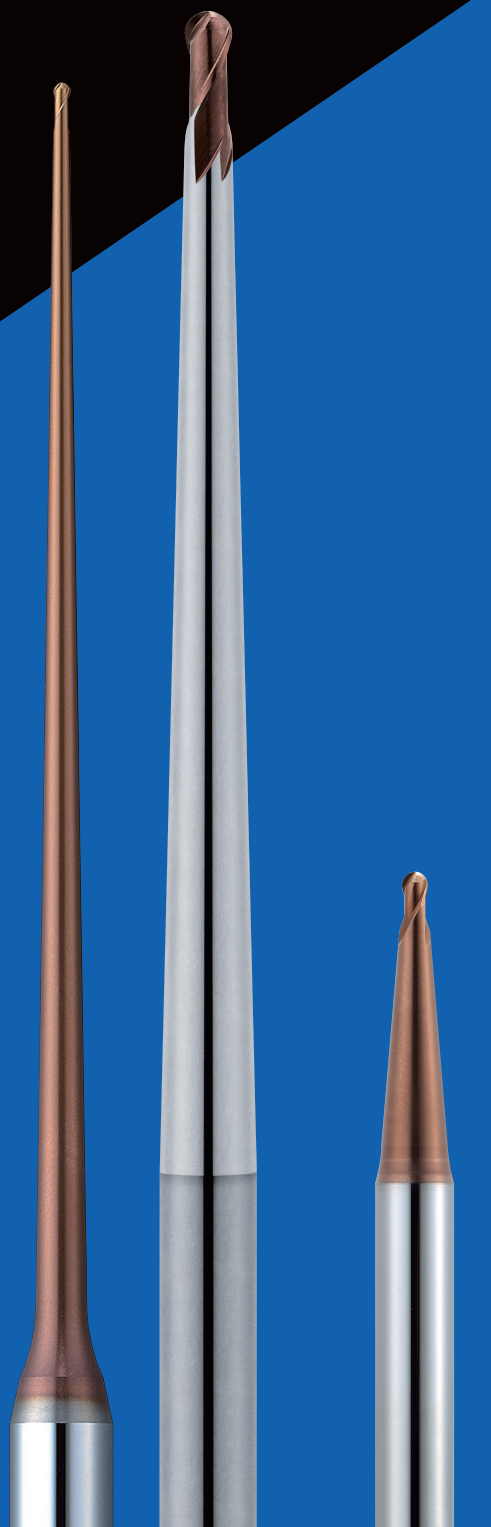
MOLDINO
The Edge To Innovation

Ball End Mill for Deep Cutting

EPDBPE-ATH

Epoch Deep Ball Pencil Evolution



MOLDINO Tool Engineering Europe GmbH

EPDBPE-ATH | 2024-05 | Version 1.0 | PDF

MOLDINO
The Edge To Innovation

Exceeds the depth limits involved with solid end mill cutting

Features of EPDBPE-ATH free-neck type

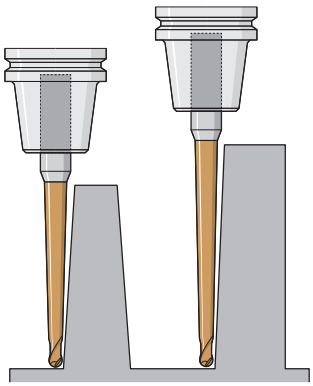
Supports deep milling on all kinds of large die cast molds, casting molds, and plastic molds. Product line-up includes a range of neck tapers and tool diameters for that "extra little bit of projection".
The free-neck type can be used even with projection longer than the under neck length. Ideal for fillet surface corrective machining at the bottom and simplified finishing processes.

Line-up: 24 items

DC: 1-12 mm

Adjustable projection length to allow tips to reach machining areas

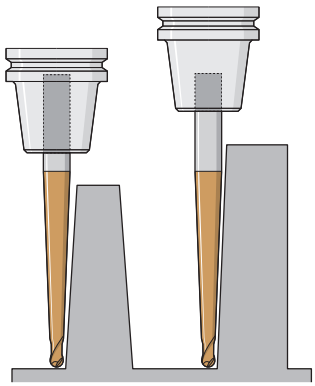
Suitable for use across a range of depths, simplifying tool selection



Tool change required for specific depth

Gripped lengths can be adjusted to suit different depths.

Absence of step at the neck minimizes risk of interference at side faces.

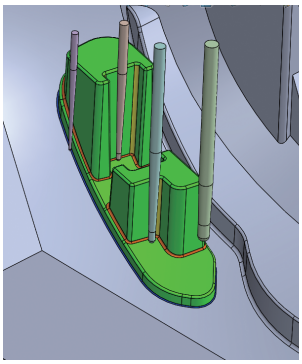


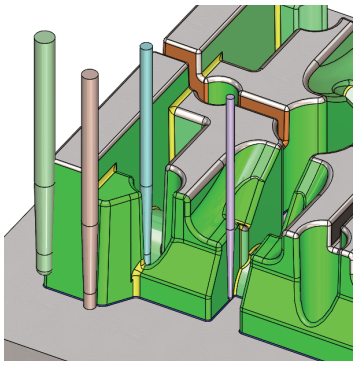
Only one free-neck tool needed!

Large plastic mold machining:

Bumper

Example of tools:
- EPDBPE2100-61-14-200-ATH
- EPDBPE2060-96-14-ATH
- EPDBPE2040-92-14-ATH
- EPDBPE2020-85-14-ATH





Die cast mold machining:

Cylinder head

Example of tools:
- EPDBPE2080-57-14-ATH
- EPDBPE2060-55-14-ATH
- EPDBPE2040-51-14-ATH
- EPDBPE2020-44-14-ATH

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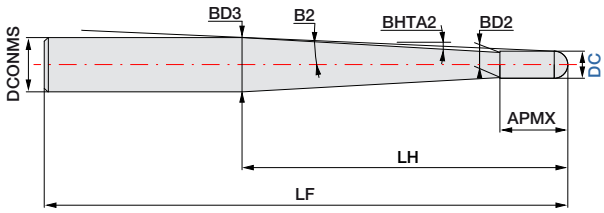
EPDBPE-ATH Line-Up Free-Neck only

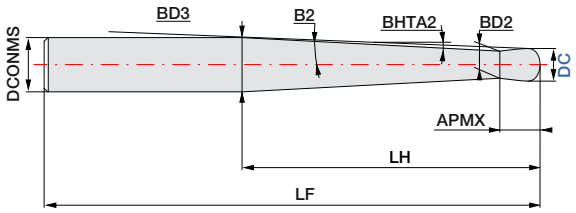
NOF 2 | V max | Carbide | ATH coated | 68 HRC

P M K N S H

No Backdraft - DC ≥ 4 mm



With Backdraft - DC < 4 mm



DCONMS Tol. (mm)	
h5	LF ≤ 150
h6	LF > 150 or DCONMS > 12

DC (mm)	R Tol.h (mm)
1-6	+/- 0.005
8-10	+/- 0.01
12	+/- 0.015

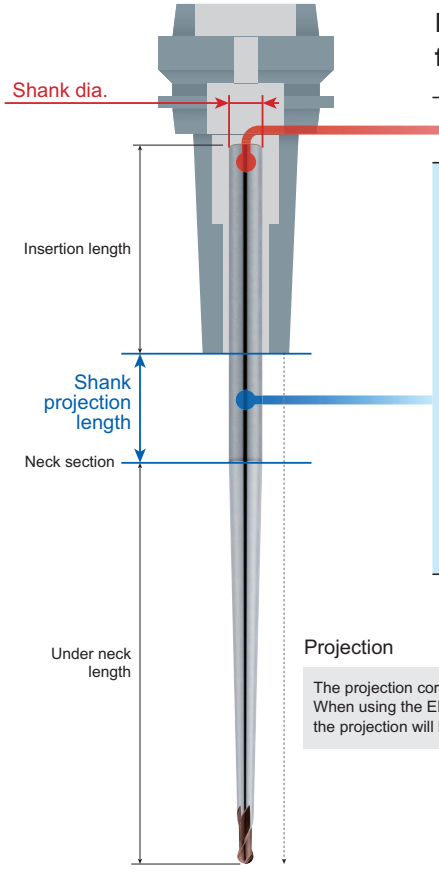
ID Code	Item Code	NOF	Size (mm)								Neck R	Neck Shape	Approx Neck Lenght ℓ'
			DC	BHTA2	LH	APMX	BD2	BD3	LF	DCONMS			
EP2689	EPDBPE2010-63-14-ATH	2	1	1.4	63	0.8	0.94	4	120	4	-	C	2.7
EP2690	EPDBPE2015-54-14-ATH	2	1.5	1.4	54	1.35	1.42	4	120	4	-	C	2.98
EP2692	EPDBPE2020-67-09-ATH	2	2	0.9	67	1.7	1.92	4	120	4	-	C	4.24
EP2691	EPDBPE2020-44-14-ATH	2	2	1.4	44	1.7	1.92	4	120	4	-	C	3.33
EP2693	EPDBPE2020-85-14-ATH	2	2	1.4	85	1.7	1.92	6	140	6	-	C	3.33
EP2694	EPDBPE2030-38-09-ATH	2	3	0.9	38	2.5	2.86	4	120	4	-	C	6.95
EP2696	EPDBPE2030-107-14-ATH	2	3	1.4	107	2.5	2.86	8	190	8	-	C	5.36
EP2695	EPDBPE2030-53-29-ATH	2	3	2.9	53	2.5	2.86	8	130	8	-	C	3.88
EP2699	EPDBPE2040-76-09-ATH	2	4	0.9	76	8	3.86	6	140	6	-	C	12.45
EP2698	EPDBPE2040-51-14-ATH	2	4	1.4	51	8	3.86	6	130	6	-	C	10.86
EP2700	EPDBPE2040-92-14-ATH	2	4	1.4	92	8	3.86	8	170	8	-	C	10.86
EP2697	EPDBPE2040-48-29-ATH	2	4	2.9	48	8	3.86	8	130	8	-	C	9.38
EP2701*	EPDBPE2050-46-09-ATH	2	5	0.9	46	10	4.86	6	130	6	-	C	14.45
EP2702*	EPDBPE2050-115-14-ATH	2	5	1.4	115	10	4.86	10	200	10	-	C	12.86
EP2705	EPDBPE2060-80-09-150-ATH	2	6	0.9	80	12	5.86	8	150	8	-	C	16.45
EP2704	EPDBPE2060-55-14-ATH	2	6	1.4	55	12	5.86	8	140	8	-	C	14.86
EP2703	EPDBPE2060-52-29-ATH	2	6	2.9	52	12	5.86	10	130	10	-	C	13.38
EP2708	EPDBPE2080-82-09-ATH	2	8	0.9	82	14	7.86	10	150	10	-	C	18.45
EP2707	EPDBPE2080-57-14-ATH	2	8	1.4	57	14	7.86	10	140	10	-	C	16.86
EP2706	EPDBPE2080-54-29-ATH	2	8	2.9	54	14	7.86	12	130	12	-	C	15.38
EP2710	EPDBPE2100-61-14-ATH	2	10	1.4	61	18	9.86	12	140	12	-	C	20.86
EP2711	EPDBPE2100-61-14-200-ATH	2	10	1.4	61	18	9.86	12	200	12	-	C	20.86
EP2709	EPDBPE2100-39-29-ATH	2	10	2.9	39	18	9.86	12	130	12	-	C	19.38
EP2712	EPDBPE2120-62-29-ATH	2	12	2.9	62	22	11.86	16	140	16	-	C	23.38

Due to manufacturing reasons, the extent of the neck coating will vary depending on the item.

All Items on EU-stock, except *-marked JPN-stock items.

All Items on EU-stock
* Items on JPN-stock

Cutting conditions (axial depth of cut (a_p) adjustment)



Ratio table for adjusting axial depth of cut (a_p) from shank projection length

Shank projection length	Shank dia. (mm) 4	6	8	10	12	16
No shank projection	100%	100%	100%	100%	100%	100%
Shank dia. × 1	80%	74%	72%	53%	49%	59%
Shank dia. × 2	65%	55%	52%	30%	27%	36%
Shank dia. × 3	52%	42%	38%	19%	16%	23%
Shank dia. × 4	43%	33%	28%	12%	10%	16%
Shank dia. × 5	35%	26%	21%	8%	7%	11%
Shank dia. × 6	30%	21%	16%	6%	5%	8%
Shank dia. × 7	25%	17%	13%	5%	4%	6%
Shank dia. × 8	21%	14%	10%	4%	3%	5%

* Maximum shank projection length will vary depending on the item.

Projection

The projection corresponds to the under neck length + shank projection length
When using the EPDBPE2040-76-09-ATH with a projection length of 3 × shank diameter, the projection will be under neck length 76 mm ＋ 18 mm = 94 mm.

Explanation

Adjust the *ap* to suit the shank projection length, referring to the table above.

* The *ap* value calculated from the standard conditions table (provided further below) applies for the minimum projection length.
When adjusting the projection by varying the shank projection length, adjust the ap value based on the ratio between the shank projection length and shank diameter in the table above.

Adjustment example

When using the EPDBPE2040-76-09-ATH to machine carbon steel or alloy steel assuming high-accuracy cutting conditions and a shank projection of 18 mm, the calculation equation is:

Datum a_p = 0.048 mm (cutting ratio for work material = 100%) × 42% coefficient for 6 shank diameter × 3 from table above (*1) = 0.02 mm

*1 18 mm shank projection length / 6 shank diameter = 3 × shank diameter

Q & A

Q1 What shank length should I use for a projection length of 3.5 × shank diameter?

A1 Use a tool corresponding to the intermediate value between 3 × and 4 × shank diameter.

Q2 Is there a limit to shank projection length?

A2 Adjust to ensure that a suitable gripping length is provided for the holder being used.

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Evolution of the Pencil Deep Ball

Features of EPDBPE-ATH

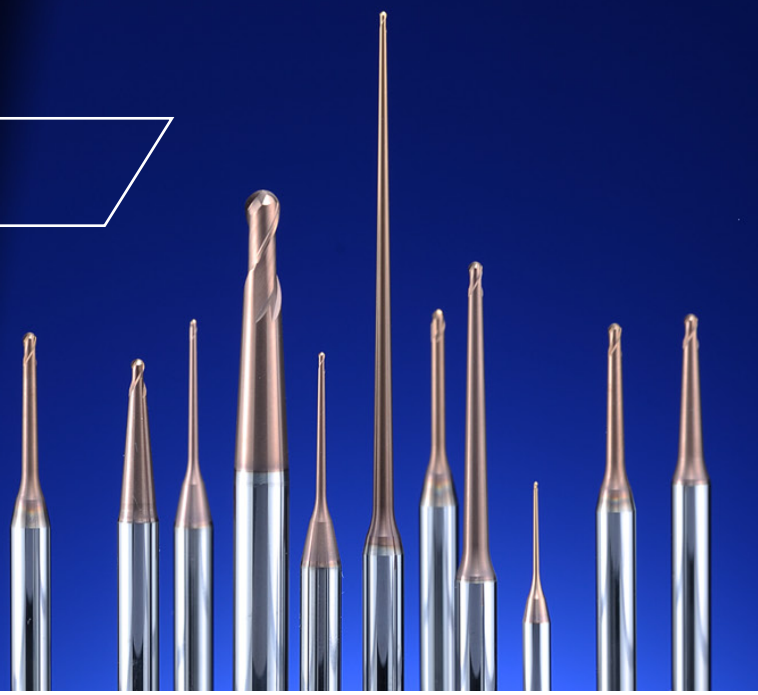
01 Reliable heat-resistant ATH coating

02 Extensive line-up allows selecting optimal tool to meet machining requirements

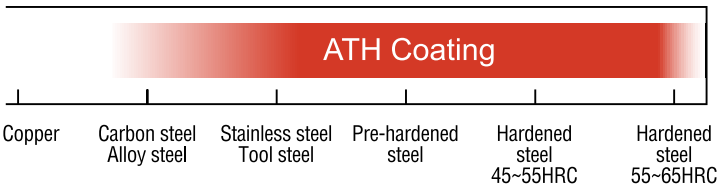
03 Ideal tool shape for stable cutting

Line-up: 129 items

DC: 0.2-12 mm



Recommended usage



Applications

Feature 01 Reliable heat-resistant ATH coating

- Hardness and oxidation resistance of TH coating is further improved. Enables longer tool life and higher efficiency when cutting high-hardness materials (Si nano composite coating with finer crystal particles).
- Exhibits amazing performance when cutting high-hardness materials (55 HRC or higher)
- Long life for both dry and wet cutting

Feature 02 Extensive line-up allows selecting optimal tool to meet machining requirements

The range of neck taper angles previously included in the EPDBP-TH line-up has been expanded.

Tool dimensions can be selected to suit the mold profile. The angle is slightly smaller than the angle of the machining face to minimize interreference due to tool deflection.

Advantages of free-neck type:

Adjustment of projection length to allow tool tips to reach machining areas:

- Tapered neck from the shank minimizes risk of interreference.
- Suitable for use across various depths, simplifying tool selection

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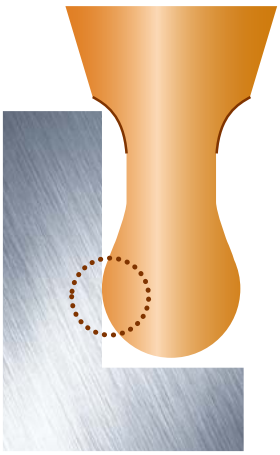
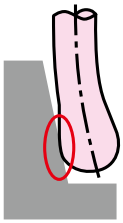
Feature 03 Ideal tool shape for stable cutting

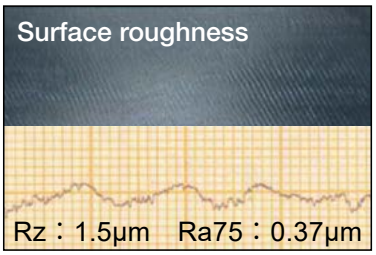
Reliable backdraft shape
Maintains reliable backdraft shape.
Reduces chattering during point cutting.



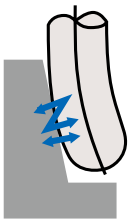
Backdraft effect

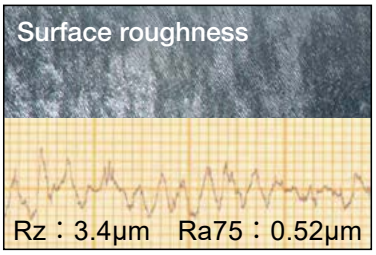
EPDBPE-ATH





Conventional A





Work material:
Pre-hardened steels (Hardness: 40HRC)
n=9,100 min^{-1} V_f=600 mm/min
Z-Pick=0.01 mm XY-Pick=0.03 mm Dry (Air Blow)

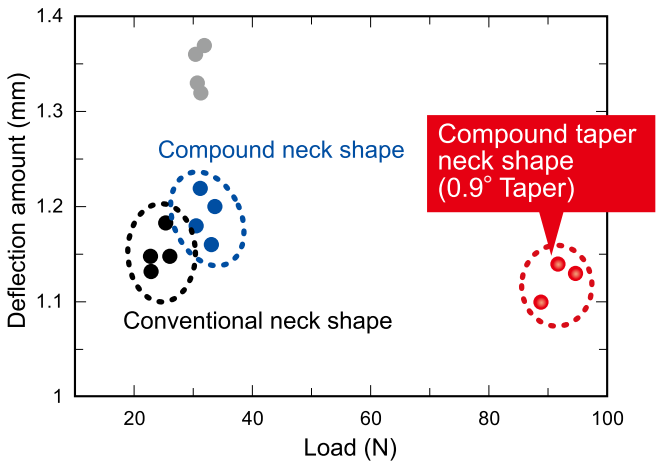
Incorporates a reliable compound neck shape

- Retains the proven curved and tapered profile from the EPDBP-TH. Combines breakage resistance with deflection suppression.

Reduces deflection issues during deep cutting, enabling machining with minimal dimensional errors.

Static load test results

Load resistance three times better than prior products (straight neck)

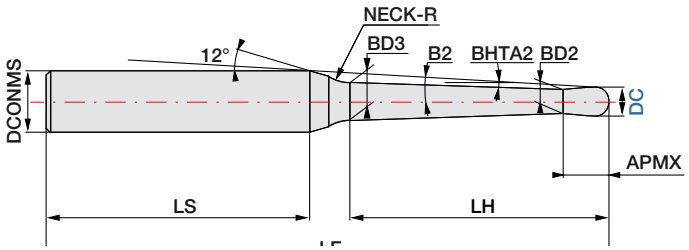


EPDBPE-ATH Line-Up All items

NOF 2 | V max | Carbide | ATH coated | 68 HRC

P M K N S H

Neck Shape A - with Backdraft - DC ≥ 4 mm = no Backdraft



DCONMS Tol. (mm)	
h5	LF ≤ 150
h6	LF > 150 or DCONMS > 12

DC (mm)	R Tol. (mm)
DC ≤ 0.5	+/- 0.003
0.5 < DC ≤ 6	+/- 0.005
7 ≤ DC ≤ 10	+/- 0.01*
DC = 12	+/- 0.015

** +/- 0.015 for DC 8 and DC 10 types with under neck length of more than 80.*

ID Code	Item Code	NOF	Size (mm)								Neck R	Neck shape	Approx. Neck length ℓ'	B2 (°)	Effective under neck length with respect to draft angle				
			DC	BHTA2	LH	APMX	BD2	BD3	LF	DCONMS					0.5°	1°	1.5°	2°	3°
EP1357	EPDBPE-2002-1-04-ATH	2	0.2	0.4	1	0.15	0.17	0.182	50	4	7	A	1.35	10.89	1.55	1.72	1.88	2.03	2.31
EP1358	EPDBPE-2002-1.5-04-ATH	2	0.2	0.4	1.5	0.15	0.17	0.189	50	4	7	A	1.77	10.39	2.06	2.28	2.47	2.64	2.97
EP1359	EPDBPE-2002-2-04-ATH	2	0.2	0.4	2	0.15	0.17	0.196	50	4	10	A	2.2	9.94	2.7	3.03	3.3	3.56	4.02
EP1360	EPDBPE-2002-3-04-ATH	2	0.2	0.4	3	0.15	0.17	0.21	50	4	10	A	2.29	9.14	3.73	4.14	4.47	4.77	5.29
EP1361	EPDBPE-2003-2-04-ATH	2	0.3	0.4	2	0.25	0.27	0.294	50	4	7	A	2.19	9.94	2.57	2.83	3.04	3.24	3.59
EP1362	EPDBPE-2003-3-04-ATH	2	0.3	0.4	3	0.25	0.27	0.308	50	4	10	A	2.39	9.12	3.73	4.14	4.47	4.76	5.28
EP1363	EPDBPE-2004-2-04-ATH	2	0.4	0.4	2	0.3	0.37	0.394	50	4	7	A	2.2	9.93	2.57	2.82	3.03	3.23	3.57
EP1364	EPDBPE-2004-3-04-ATH	2	0.4	0.4	3	0.3	0.37	0.408	50	4	7	A	2.44	9.1	3.6	3.92	4.18	4.4	4.8
EP1365	EPDBPE-2004-4-04-ATH	2	0.4	0.4	4	0.3	0.37	0.422	50	4	10	A	2.44	8.39	4.76	5.23	5.61	5.93	6.51
EP1366	EPDBPE-2004-5-04-ATH	2	0.4	0.4	5	0.3	0.37	0.436	50	4	10	A	2.44	7.78	5.78	6.33	6.74	7.1	7.71
EP1367	EPDBPE-2004-6-04-ATH	2	0.4	0.4	6	0.3	0.37	0.45	50	4	10	A	2.44	7.25	6.81	7.41	7.86	8.25	8.9
EP1368	EPDBPE-2004-2-09-ATH	2	0.4	0.9	2	0.3	0.37	0.423	50	4	7	A	1.25	10	2.3	2.66	2.9	3.12	3.49
EP1369	EPDBPE-2004-4-09-ATH	2	0.4	0.9	4	0.3	0.37	0.486	50	4	10	A	1.25	8.49	2.57	4.87	5.35	5.72	6.34
EP1370	EPDBPE-2004-5-09-ATH	2	0.4	0.9	5	0.3	0.37	0.518	50	4	10	A	1.25	7.89	2.57	5.9	6.44	6.85	7.53
EP1371	EPDBPE-2004-6-09-ATH	2	0.4	0.9	6	0.3	0.37	0.549	50	4	10	A	1.25	7.37	2.57	6.92	7.52	7.97	8.69
EP1372	EPDBPE-2005-4-04-ATH	2	0.5	0.4	4	0.35	0.47	0.521	50	4	7	A	2.49	8.35	4.62	5	5.3	5.55	5.99
EP1373	EPDBPE-2005-6-04-ATH	2	0.5	0.4	6	0.35	0.47	0.549	50	4	10	A	2.49	7.2	6.8	7.41	7.86	8.24	8.89
EP1374	EPDBPE-2005-6-09-ATH	2	0.5	0.9	6	0.35	0.47	0.648	50	4	10	A	1.3	7.32	2.62	6.92	7.52	7.97	8.69
EP1375	EPDBPE-2005-8-09-ATH	2	0.5	0.9	8	0.35	0.47	0.71	50	4	10	A	1.3	6.45	2.62	8.96	9.67	10.18	10.99
EP1376	EPDBPE-2006-2-04-ATH	2	0.6	0.4	2	0.4	0.57	0.592	50	4	4	A	2.17	9.93	2.42	2.59	2.73	2.85	3.08
EP1377	EPDBPE-2006-4-04-ATH	2	0.6	0.4	4	0.4	0.57	0.62	50	4	7	A	2.54	8.31	4.62	5	5.29	5.54	5.98
EP1378	EPDBPE-2006-6-04-ATH	2	0.6	0.4	6	0.4	0.57	0.648	50	4	10	A	2.54	7.14	6.8	7.41	7.85	8.23	8.88
EP1379	EPDBPE-2006-8-04-ATH	2	0.6	0.4	8	0.4	0.57	0.676	50	4	10	A	2.54	6.26	8.85	9.56	10.07	10.5	11.22
EP1380	EPDBPE-2006-10-04-ATH	2	0.6	0.4	10	0.4	0.57	0.704	50	4	10	A	2.54	5.57	10.89	11.7	12.27	12.73	13.52
EP1381	EPDBPE-2006-12-04-ATH	2	0.6	0.4	12	0.4	0.57	0.732	55	4	10	A	2.54	5.02	12.94	13.83	14.44	14.95	15.79
EP1382	EPDBPE-2006-15-04-ATH	2	0.6	0.4	15	0.4	0.57	0.774	55	4	10	A	2.54	4.37	15.99	17.01	17.68	18.24	19.27
EP1383	EPDBPE-2006-4-09-ATH	2	0.6	0.9	4	0.4	0.57	0.683	50	4	7	A	1.35	8.41	2.67	4.7	5.07	5.37	5.85
EP1384	EPDBPE-2006-6-09-ATH	2	0.6	0.9	6	0.4	0.57	0.746	50	4	10	A	1.35	7.26	2.67	6.92	7.51	7.96	8.68
EP1385	EPDBPE-2006-8-09-ATH	2	0.6	0.9	8	0.4	0.57	0.809	50	4	10	A	1.35	6.38	2.67	8.96	9.67	10.18	10.98
EP1386	EPDBPE-2006-10-09-ATH	2	0.6	0.9	10	0.4	0.57	0.872	50	4	10	A	1.35	5.7	2.67	11.01	11.81	12.37	13.25
EP1387	EPDBPE-2006-12-09-ATH	2	0.6	0.9	12	0.4	0.57	0.934	55	4	10	A	1.35	5.14	2.67	13.05	13.94	14.54	15.49
EP1388	EPDBPE-2006-15-09-ATH	2	0.6	0.9	15	0.4	0.57	1.029	55	4	10	A	1.35	4.49	2.67	16.1	17.11	17.78	18.81

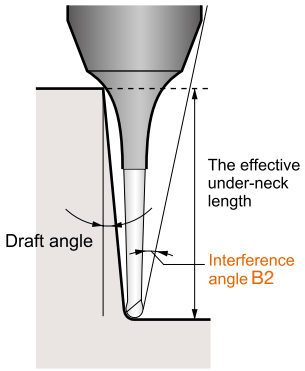
Due to manufacturing reasons, the extent of the neck coating will vary depending on the item.

All Items on EU-stock

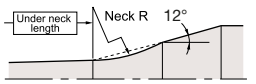
EPDBPE-ATH Line-Up All items

NOF 2 | V max | Carbide | ATH coated | 68 HRC

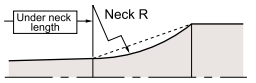
P M K N S H



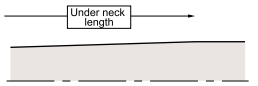
Neck shape A
Compound neck shape



Neck shape B
Without taper



Neck shape C
Free-neck type



ID Code	Item Code	NOF	Size (mm)								Neck R	Neck shape	Approx. Neck length ℓ'	B2 (°)	Effective under neck length with respect to draft angle				
			DC	BHTA2	LH	APMX	BD2	BD3	LF	DCONMS					0.5°	1°	1.5°	2°	3°
EP1389	EPDBPE-2008-4-04-ATH	2	0.8	0.4	4	0.5	0.77	0.819	50	4	7	A	2.64	8.22	4.61	4.99	5.28	5.53	5.97
EP1390	EPDBPE-2008-6-04-ATH	2	0.8	0.4	6	0.5	0.77	0.847	50	4	7	A	2.64	7.01	6.66	7.14	7.5	7.79	8.3
EP1391	EPDBPE-2008-8-04-ATH	2	0.8	0.4	8	0.5	0.77	0.875	50	4	10	A	2.64	6.11	8.85	9.56	10.06	10.49	11.21
EP1392	EPDBPE-2008-12-04-ATH	2	0.8	0.4	12	0.5	0.77	0.931	55	4	10	A	2.64	4.86	12.93	13.83	14.44	14.94	15.77
EP1393	EPDBPE-2008-8-09-ATH	2	0.8	0.9	8	0.5	0.77	1.006	50	4	10	A	1.45	6.24	2.77	8.96	9.66	10.17	10.97
EP1394	EPDBPE-2008-12-09-ATH	2	0.8	0.9	12	0.5	0.77	1.131	55	4	10	A	1.45	4.99	2.77	13.04	13.93	14.54	15.48
EP1395	EPDBPE-2008-16-09-ATH	2	0.8	0.9	16	0.5	0.77	1.257	55	4	10	A	1.45	4.15	2.77	17.12	18.16	18.85	19.9
EP1396	EPDBPE-2009-4-04-ATH	2	0.9	0.4	4	0.6	0.86	0.907	50	4	4	A	3.46	8.15	4.5	4.75	4.94	5.11	5.41
EP1397	EPDBPE-2009-8-04-ATH	2	0.9	0.4	8	0.6	0.86	0.963	55	4	7	A	3.46	6.03	8.75	9.3	9.7	10.03	10.6
EP1398	EPDBPE-2009-12-04-ATH	2	0.9	0.4	12	0.6	0.86	1.019	55	4	10	A	3.46	4.78	12.99	13.86	14.46	14.95	15.78
EP1399	EPDBPE-2009-16-04-ATH	2	0.9	0.4	16	0.6	0.86	1.075	60	4	10	A	3.46	3.96	17.07	18.08	18.77	19.33	20.54
EP1400	EPDBPE-2009-20-04-ATH	2	0.9	0.4	20	0.6	0.86	1.131	65	4	10	A	3.46	3.38	21.13	22.29	23.05	23.66	25.68
EP1401	EPDBPE-2010-6-04-ATH	2	1	0.4	6	0.8	0.94	1.013	50	6	7	A	5.09	8.26	6.82	7.24	7.57	7.85	8.34
EP1402	EPDBPE-2010-8-04-ATH	2	1	0.4	8	0.8	0.94	1.041	55	6	7	A	5.09	7.44	8.85	9.36	9.74	10.07	10.62
EP1403	EPDBPE-2010-10-04-ATH	2	1	0.4	10	0.8	0.94	1.068	55	6	10	A	5.09	6.76	11.07	11.79	12.33	12.78	13.54
EP1404	EPDBPE-2010-15-04-ATH	2	1	0.4	15	0.8	0.94	1.138	60	6	10	A	5.09	5.51	16.16	17.08	17.73	18.27	19.31
EP1405	EPDBPE-2010-20-04-ATH	2	1	0.4	20	0.8	0.94	1.208	65	6	10	A	5.09	4.65	21.23	22.33	23.08	23.69	25.73
EP1406	EPDBPE-2010-25-04-ATH	2	1	0.4	25	0.8	0.94	1.278	70	6	10	A	5.09	4.02	26.31	27.56	28.38	29.05	32.15
EP1407	EPDBPE-2010-30-04-ATH	2	1	0.4	30	0.8	0.94	1.348	75	6	10	A	5.09	3.54	31.37	32.76	33.66	34.82	38.57
EP1408	EPDBPE-2010-6-09-ATH	2	1	0.9	6	0.8	0.94	1.103	50	6	7	A	2.7	8.36	5.47	6.91	7.32	7.65	8.19
EP1409	EPDBPE-2010-10-09-ATH	2	1	0.9	10	0.8	0.94	1.229	55	6	10	A	2.7	6.88	5.47	11.2	11.91	12.44	13.28
EP1410	EPDBPE-2010-15-09-ATH	2	1	0.9	15	0.8	0.94	1.386	60	6	10	A	2.7	5.64	5.47	16.28	17.19	17.84	18.84
EP1411	EPDBPE-2010-20-09-ATH	2	1	0.9	20	0.8	0.94	1.543	65	6	10	A	2.7	4.77	5.47	21.35	22.44	23.18	24.68
EP1412	EPDBPE-2010-25-09-ATH	2	1	0.9	25	0.8	0.94	1.7	70	6	10	A	2.7	4.14	5.47	26.42	27.66	28.48	30.83
EP1413	EPDBPE-2010-30-09-ATH	2	1	0.9	30	0.8	0.94	1.857	75	6	10	A	2.7	3.65	5.47	31.49	32.86	33.75	36.98
EP1414	EPDBPE-2010-35-09-ATH	2	1	0.9	35	0.8	0.94	2.015	80	6	10	A	2.7	3.27	5.47	36.55	38.04	39	43.12
EP2689	EPDBPE2010-63-14-ATH	2	1	1.4	63	0.8	0.94	4	120	4	-	C	2.7	No interference above 1.4°					

Due to manufacturing reasons, the extent of the neck coating will vary depending on the item.

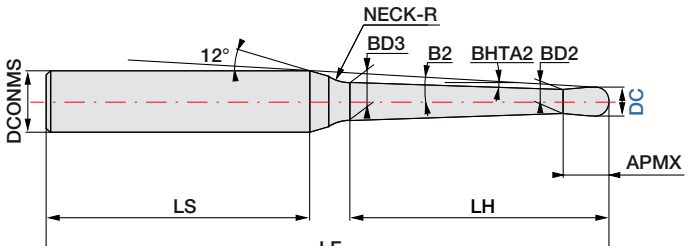
All Items on EU-stock

EPDBPE-ATH Line-Up All items

NOF 2 | V max | Carbide | ATH coated | 68 HRC

P M K N S H

Neck Shape A - with Backdraft - DC ≥ 4 mm = no Backdraft



DCONMS Tol. (mm)	
h5	LF ≤ 150
h6	LF > 150 or DCONMS > 12

DC (mm)	R Tol. (mm)
DC ≤ 0.5	+/- 0.003
0.5 < DC ≤ 6	+/- 0.005
7 ≤ DC ≤ 10	+/- 0.01*
DC = 12	+/- 0.015

** +/- 0.015 for DC 8 and DC 10 types with under neck length of more than 80.*

ID Code	Item Code	NOF	Size (mm)								Neck R	Neck shape	Approx. Neck length ℓ'	B2 (°)	Effective under neck length with respect to draft angle				
			DC	BHTA2	LH	APMX	BD2	BD3	LF	DCONMS					0.5°	1°	1.5°	2°	3°
EP1415	EPDBPE-2015-8-04-ATH	2	1.5	0.4	8	1.35	1.42	1.513	55	6	7	A	7.07	7.21	8.95	9.41	9.78	10.09	10.62
EP1416	EPDBPE-2015-10-04-ATH	2	1.5	0.4	10	1.35	1.42	1.541	55	6	7	A	7.07	6.51	10.97	11.52	11.93	12.28	12.9
EP1417	EPDBPE-2015-12-04-ATH	2	1.5	0.4	12	1.35	1.42	1.569	55	6	7	A	7.07	5.93	13	13.62	14.07	14.45	15.47
EP1418	EPDBPE-2015-30-04-ATH	2	1.5	0.4	30	1.35	1.42	1.82	75	6	10	A	7.07	3.3	31.46	32.79	33.68	34.85	38.57
EP1419	EPDBPE-2015-10-09-ATH	2	1.5	0.9	10	1.35	1.42	1.692	55	6	7	A	3.89	6.63	7.83	11.08	11.61	12.02	12.67
EP1420	EPDBPE-2015-15-09-ATH	2	1.5	0.9	15	1.35	1.42	1.849	60	6	10	A	3.89	5.36	7.83	16.4	17.25	17.88	18.86
EP1421	EPDBPE-2015-20-09-ATH	2	1.5	0.9	20	1.35	1.42	2.006	65	6	10	A	3.89	4.5	7.83	21.47	22.49	23.21	24.72
EP1422	EPDBPE-2015-30-09-ATH	2	1.5	0.9	30	1.35	1.42	2.32	75	6	10	A	3.89	3.4	7.83	31.59	32.9	33.78	37.01
EP2690	EPDBPE2015-54-14-ATH	2	1.5	1.4	54	1.35	1.42	4	120	4	-	C	2.98	No interference above 1.4°					
EP1423	EPDBPE-2020-8-04-ATH	2	2	0.4	8	1.7	1.92	2.008	50	6	4	A	7.42	6.96	8.7	9.03	9.28	9.5	10.27
EP1424	EPDBPE-2020-12-04-ATH	2	2	0.4	12	1.7	1.92	2.064	55	6	7	A	7.42	5.64	13	13.61	14.06	14.43	15.4
EP1425	EPDBPE-2020-16-04-ATH	2	2	0.4	16	1.7	1.92	2.12	60	6	7	A	7.42	4.74	17.05	17.79	18.31	18.74	20.54
EP1426	EPDBPE-2020-20-04-ATH	2	2	0.4	20	1.7	1.92	2.176	65	6	10	A	7.42	4.09	21.33	22.37	23.09	23.68	25.67
EP1427	EPDBPE-2020-25-04-ATH	2	2	0.4	25	1.7	1.92	2.245	65	6	10	A	7.42	3.49	26.4	27.59	28.39	29.05	32.09
EP1428	EPDBPE-2020-30-04-ATH	2	2	0.4	30	1.7	1.92	2.315	70	6	10	A	7.42	3.04	31.46	32.79	33.67	34.81	38.51
EP1429	EPDBPE-2020-40-04-ATH	2	2	0.4	40	1.7	1.92	2.455	80	6	10	A	7.42	2.42	41.58	43.14	44.26	46.39	-
EP1430	EPDBPE-2020-12-09-ATH	2	2	0.9	12	1.7	1.92	2.244	55	6	7	A	4.24	5.76	8.3	13.11	13.7	14.14	14.84
EP1431	EPDBPE-2020-16-09-ATH	2	2	0.9	16	1.7	1.92	2.369	60	6	7	A	4.24	4.86	8.3	17.16	17.88	18.39	19.76
EP1432	EPDBPE-2020-20-09-ATH	2	2	0.9	20	1.7	1.92	2.495	65	6	10	A	4.24	4.2	8.3	21.48	22.49	23.2	24.68
EP1433	EPDBPE-2020-25-09-ATH	2	2	0.9	25	1.7	1.92	2.652	65	6	10	A	4.24	3.6	8.3	26.54	27.7	28.5	30.82
EP1434	EPDBPE-2020-30-09-ATH	2	2	0.9	30	1.7	1.92	2.809	70	6	10	A	4.24	3.14	8.3	31.6	32.9	33.77	36.97
EP1435	EPDBPE-2020-35-09-ATH	2	2	0.9	35	1.7	1.92	2.966	75	6	10	A	4.24	2.79	8.3	36.66	38.08	39.02	-
EP1436	EPDBPE-2020-40-09-ATH	2	2	0.9	40	1.7	1.92	3.123	80	6	10	A	4.24	2.51	8.3	41.72	43.25	44.5	-
EP1437	EPDBPE-2020-50-09-ATH	2	2	0.9	50	1.7	1.92	3.438	90	6	10	A	4.24	2.09	8.3	51.82	53.56	55.58	-
EP2692	EPDBPE2020-67-09-ATH	2	2	0.9	67	1.7	1.92	4	120	4	-	C	4.24	No interference above 0.9°					
EP2691	EPDBPE2020-44-14-ATH	2	2	1.4	44	1.7	1.92	4	120	4	-	C	3.33	No interference above 1.4°					
EP2693	EPDBPE2020-85-14-ATH	2	2	1.4	85	1.7	1.92	6	140	6	-	C	3.33	No interference above 1.4°					

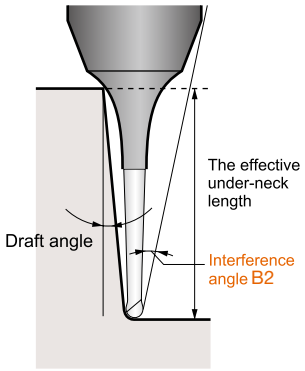
Due to manufacturing reasons, the extent of the neck coating will vary depending on the item.

All Items on EU-stock

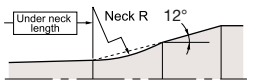
EPDBPE-ATH Line-Up All items

NOF 2 | V max | Carbide | ATH coated | 68 HRC

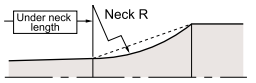
P M K N S H



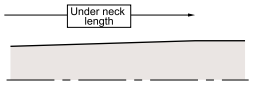
Neck shape A
Compound neck shape



Neck shape B
Without taper



Neck shape C
Free-neck type



ID Code	Item Code	NOF	Size (mm)								Neck R	Neck shape	Approx. Neck length ℓ'	B2 (°)	Effective under neck length with respect to draft angle				
			DC	BHTA2	LH	APMX	BD2	BD3	LF	DCONMS					0.5°	1°	1.5°	2°	3°
EP1438	EPDBPE-2030-8-04-ATH	2	3	0.4	8	2.5	2.86	2.937	50	6	4	A	8.5	6.25	8.87	9.13	9.35	9.55	10.33
EP1439	EPDBPE-2030-16-04-ATH	2	3	0.4	16	2.5	2.86	3.048	55	6	7	A	12.52	4.01	17.25	17.89	18.38	18.79	20.6
EP1440	EPDBPE-2030-20-04-ATH	2	3	0.4	20	2.5	2.86	3.104	60	6	7	A	12.52	3.4	21.29	22.04	22.6	23.34	25.74
EP1441	EPDBPE-2030-30-04-ATH	2	3	0.4	30	2.5	2.86	3.244	70	6	10	A	12.52	2.46	31.67	32.88	33.73	34.92	-
EP1442	EPDBPE-2030-40-04-ATH	2	3	0.4	40	2.5	2.86	3.384	80	6	10	A	12.52	1.93	41.78	43.23	44.38	-	-
EP1443	EPDBPE-2030-50-04-ATH	2	3	0.4	50	2.5	2.86	3.523	90	6	10	A	12.52	1.59	51.87	53.53	55.41	-	-
EP1444	EPDBPE-2030-15-09-ATH	2	3	0.9	15	2.5	2.86	3.253	55	6	7	A	6.95	4.3	13.78	16.35	16.95	17.41	18.64
EP1445	EPDBPE-2030-20-09-ATH	2	3	0.9	20	2.5	2.86	3.41	60	6	7	A	6.95	3.5	13.78	21.4	22.14	22.68	24.78
EP1446	EPDBPE-2030-30-09-ATH	2	3	0.9	30	2.5	2.86	3.724	70	6	10	A	6.95	2.54	13.78	31.82	33	33.84	-
EP2694	EPDBPE2030-38-09-ATH	2	3	0.9	38	2.5	2.86	4	120	4	-	C	6.95	No interference above 0.9°					
EP1447	EPDBPE-2030-40-09-ATH	2	3	0.9	40	2.5	2.86	4.038	80	6	10	A	6.95	2	13.78	41.92	43.34	-	-
EP1448	EPDBPE-2030-50-09-ATH	2	3	0.9	50	2.5	2.86	4.352	90	6	10	B	6.95	1.64	13.78	52.01	53.64	-	-
EP1449	EPDBPE-2030-60-09-ATH	2	3	0.9	60	2.5	2.86	4.667	100	6	10	B	6.95	1.39	13.78	62.1	-	-	-
EP2696	EPDBPE2030-107-14-ATH	2	3	1.4	107	2.5	2.86	8	190	8	-	C	5.36	No interference above 1.4°					
EP2695	EPDBPE2030-53-29-ATH	2	3	2.9	53	2.5	2.86	8	130	8	-	C	3.88	No interference above 2.9°					
EP1450	EPDBPE-2040-20-09-ATH	2	4	0.9	20	8	3.86	4.237	70	8	7	A	12.45	4.26	20.79	21.76	22.37	22.87	25.16
EP1451	EPDBPE-2040-30-09-ATH	2	4	0.9	30	8	3.86	4.551	80	8	7	A	12.45	3.17	25.53	31.83	32.66	33.95	37.45
EP1452	EPDBPE-2040-40-09-ATH	2	4	0.9	40	8	3.86	4.865	90	8	10	B	12.45	2.53	25.53	42.31	43.56	45.04	-
EP1453	EPDBPE-2040-60-09-ATH	2	4	0.9	60	8	3.86	5.494	110	8	10	B	12.45	1.8	25.53	62.46	64.14	-	-
EP2699	EPDBPE2040-76-09-ATH	2	4	0.9	76	8	3.86	6	140	6	-	C	12.45	No interference above 0.9°					
EP2698	EPDBPE2040-51-14-ATH	2	4	1.4	51	8	3.86	6	130	6	-	C	10.86	No interference above 1.4°					
EP2700	EPDBPE2040-92-14-ATH	2	4	1.4	92	8	3.86	8	170	8	-	C	10.86	No interference above 1.4°					
EP2697	EPDBPE2040-48-29-ATH	2	4	2.9	48	8	3.86	8	130	8	-	C	9.38	No interference above 2.9°					
EP1454	EPDBPE-2050-30-09-ATH	2	5	0.9	30	10	4.86	5.488	80	8	7	B	14.45	2.58	29.41	31.92	32.71	34.04	-
EP1455	EPDBPE-2050-40-09-ATH	2	5	0.9	40	10	4.86	5.803	90	8	7	B	14.45	2.02	29.41	41.98	43.12	45.12	-
EP2701*	EPDBPE2050-46-09-ATH	2	5	0.9	46	10	4.86	6	130	6	-	C	14.45	No interference above 0.9°					
EP1456	EPDBPE-2050-60-09-ATH	2	5	0.9	60	10	4.86	6.431	110	8	10	B	14.45	1.4	29.41	62.56	-	-	-
EP1457	EPDBPE-2050-90-09-ATH	2	5	0.9	90	10	4.86	7.373	140	8	10	B	14.45	0.96	29.41	-	-	-	-
EP2702*	EPDBPE2050-115-14-ATH	2	5	1.4	115	10	4.86	10	200	10	-	C	12.86	No interference above 1.4°					

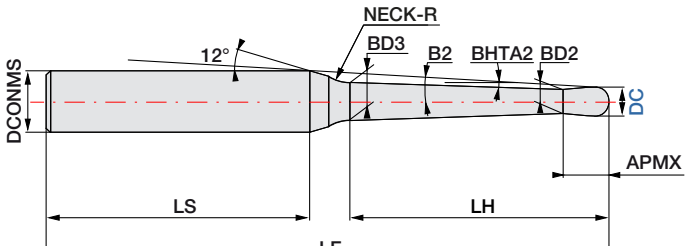
Due to manufacturing reasons, the extent of the neck coating will vary depending on the item.
All Items on EU-stock, except *-marked JPN-stock items.

EPDBPE-ATH Line-Up All items

NOF 2 | V max | Carbide | ATH coated | 68 HRC

P M K N S H

Neck Shape A - with Backdraft - DC ≥ 4 mm = no Backdraft



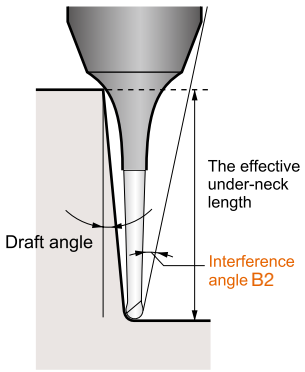
DCONMS Tol. (mm)	
h5	LF ≤ 150
h6	LF > 150 or DCONMS > 12

DC (mm)	R Tol. (mm)
DC ≤ 0.5	+/- 0.003
0.5 < DC ≤ 6	+/- 0.005
7 ≤ DC ≤ 10	+/- 0.01*
DC = 12	+/- 0.015

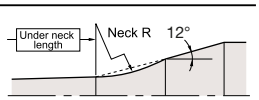
** +/- 0.015 for DC 8 and DC 10 types with under neck length of more than 80.*

ID Code	Item Code	NOF	Size (mm)								Neck R	Neck shape	Approx. Neck length ℓ'	B2 (°)	Effective under neck length with respect to draft angle				
			DC	BHTA2	LH	APMX	BD2	BD3	LF	DCONMS					0.5°	1°	1.5°	2°	3°
EP1458	EPDBPE-2060-30-09-ATH	2	6	0.9	30	12	5.86	6.426	80	8	7	B	16.45	1.87	30.63	32	32.76	-	-
EP1459	EPDBPE-2060-45-09-ATH	2	6	0.9	45	12	5.86	6.897	95	8	7	B	16.45	1.29	33.29	47.09	-	-	-
EP1460	EPDBPE-2060-60-09-ATH	2	6	0.9	60	12	5.86	7.368	110	10	10	B	16.45	1.82	33.29	62.65	64.34	-	-
EP1461	EPDBPE-2060-80-09-ATH	2	6	0.9	80	12	5.86	7.996	130	10	10	B	16.45	1.41	33.29	82.78	-	-	-
EP2705	EPDBPE2060-80-09-150-ATH	2	6	0.9	80	12	5.86	8	150	8	-	C	16.45	No interference above 0.9°					
EP2704	EPDBPE2060-55-14-ATH	2	6	1.4	55	12	5.86	8	140	8	-	C	14.86	No interference above 1.4°					
EP2703	EPDBPE2060-52-29-ATH	2	6	2.9	52	12	5.86	10	130	10	-	C	13.38	No interference above 2.9°					
EP2708	EPDBPE2080-82-09-ATH	2	8	0.9	82	14	7.86	10	150	10	-	C	18.45	No interference above 0.9°					
EP2707	EPDBPE2080-57-14-ATH	2	8	1.4	57	14	7.86	10	140	10	-	C	16.86	No interference above 1.4°					
EP2706	EPDBPE2080-54-29-ATH	2	8	2.9	54	14	7.86	12	130	12	-	C	15.38	No interference above 2.9°					
EP2710	EPDBPE2100-61-14-ATH	2	10	1.4	61	18	9.86	12	140	12	-	C	20.86	No interference above 1.4°					
EP2711	EPDBPE2100-61-14-200-ATH	2	10	1.4	61	18	9.86	12	200	12	-	C	20.86	No interference above 1.4°					
EP2709	EPDBPE2100-39-29-ATH	2	10	2.9	39	18	9.86	12	130	12	-	C	19.38	No interference above 2.9°					
EP2712	EPDBPE2120-62-29-ATH	2	12	2.9	62	22	11.86	16	140	16	-	C	23.38	No interference above 2.9°					

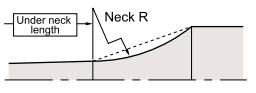
Due to manufacturing reasons, the extent of the neck coating will vary depending on the item.



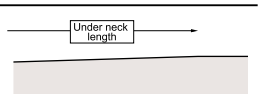
Neck shape A
Compound neck shape



Neck shape B
Without taper



Neck shape C
Free-neck type

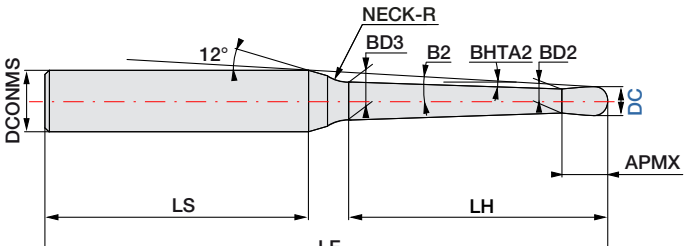


EPDBPE-ATH Line-Up All items

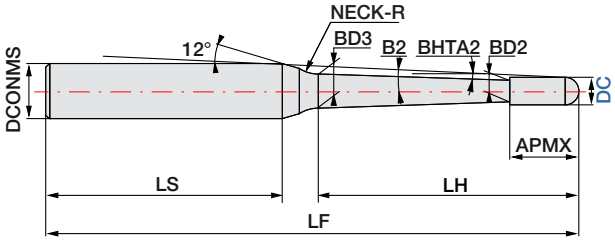
NOF 2 | V max | Carbide | ATH coated | 68 HRC

P M K
N S H

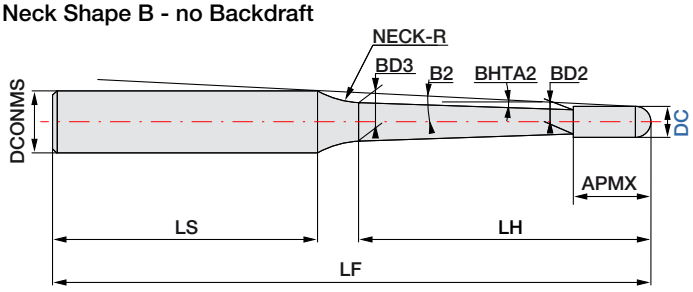
Neck Shape A - with Backdraft - DC ≥ 4 mm = no Backdraft



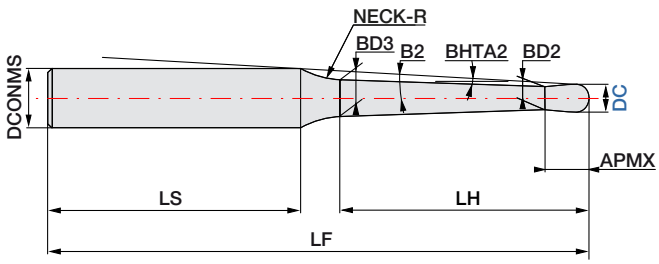
Neck Shape A - no Backdraft



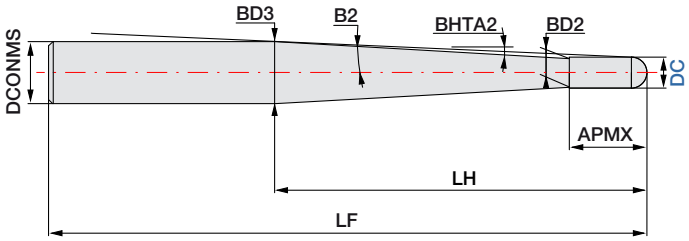
Neck Shape B - no Backdraft



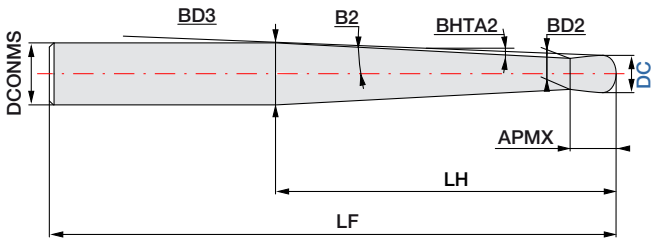
Neck Shape B - with Backdraft



Neck Shape C - no Backdraft



Neck Shape C - with Backdraft



EPDBPE-ATH General technical information

ISO 513 Symbol	Description	Examples
P	Non-alloy steel, low alloy steel, high alloy steel, ferritic/martensitic stainless steel, tool steel	1.2343 / X38CrMoV5-1; 1.2738 / 40CrMnNiMo8; 1.0503 / C45; 1.0570 / ST52-3; 1.1730 / C45W; 1.7131 / 16MnCr5; 1.7225 / 42CrMo4; 1.3343 / HS6-5-2; 1.0511 / C40; 1.2312 / 40CrMnMoS8-6; 1.2311 / 40CrMnMo7; 1.2344 / X40CrMoV5-1; 1.2767 / X45NiCrMo4; 1.2083 / X42Cr13; 1.2085 / X33CrS16; 1.2714 / 55NiCrMoV7; 1.2842 / 90MnCrV8;
M	Austenitic stainless steel	1.4301 / X5CrNi18-9; 1.4401 / X5CrNiMo17-12-2; 1.4404 / X2CrNiMo17-13-2; 1.4828 / X15CrNiSi20 12
K	Grey cast iron (GG), nodular cast iron (GGG), malleable cast iron	0.6025 / GG-25; GGG-40.3; 0.8155 / GTS-55-04
N	Aluminum wrought all, copper alloy, aluminum-cast, alloyed, non-metallic	2.0060 / E-Cu57; 2.0321 / CuZn37; 3.0255 / Al99.5; 3.5103 / MgSE3Zn27r1
S	High temperature alloys, titanium and Ti alloys	1.4864 / X12NiCrSi36 16; 2.4856 / NiCr22Mo9Nb; 1.4977 / X40CoCrNi20 20; 2.4669 / NiCr15Fe7TiAl
H	Hardened steel, chilled cast iron, cast iron	

Recommended	Suitable	NOT recommended
P M K N S H	P M K N S H	P M K N S H

Drawing Nomenclature	
DC	Diameter Cutting
DCONMS	Connection Diameter Machine Side
LH	Head Length
LF	Length Function
LS	Length Shank
B2	Interference Angle
BD2	Neck Diameter
BD3	Under Neck Diameter
BHTA2	Neck Angle
Neck R	Neck Radius
APMX	Cutting Edge Length

MOLDINO
The Edge To Innovation

Attentions on Safety

1. Cautions regarding handling

(1) When removing the tool from its case (packaging), be careful that the tool does not pop out or is dropped. Be particularly careful regarding contact with the tool flutes.

(2) When handling tools with sharp cutting flutes, be careful not to touch the cutting flutes directly with your bare hands.

2. Cautions regarding mounting

(1) Before use, check the outside appearance of the tool for scratches, cracks, etc. and that it is firmly mounted in the collet chuck, etc.

(2) When preparing for use, be sure that the inserts are firmly mounted in place and that they are firmly mounted on the arbor, etc.

(3) If abnormal chattering, etc. occurs during use, stop the machine immediately and remove the cause of the chattering.

3. Cautions during use

(1) Before use, confirm the dimensions and direction of rotation of the tool and milling work material.

(2) The numerical values in the standard cutting conditions table should be used as criteria when starting new work. The cutting conditions should be adjusted as appropriate when the cutting depth is large, the rigidity of the machine being used is low, or according to the conditions of the work material.

(3) Cutting tools are made of a hard material. During use, they may break and fly off. In addition, cutting chips may also fly off. Since there is a danger of injury to workers, fire, or eye damage from such flying pieces, a safety cover should be attached when work is performed and safety equipment such as safety goggles should be worn to create a safe environment for work.

(4) There is a risk of fire or inflammation due to sparks, heat due to breakage, and cutting chips. Do not use where there is a risk of fire or explosion. Please caution of fire while using oil base coolant, fire prevention is necessary.

(5) Do not use the tool for any purpose other than that for which it is intended.

4. Cautions regarding regrinding

(1) If regrinding is not performed at the proper time, there is a risk of the tool breaking. Replace the tool with one in good condition, or perform regrinding.

(2) Grinding dust will be created when regrinding a tool. When regrinding, be sure to attach a safety cover over the work area and wear safety clothes such as safety goggles, etc.

(3) This product contains the specified chemical substance cobalt and its inorganic compounds. When performing regrinding or similar processing, be sure to handle the processing in accordance with the local laws and regulations regarding prevention of hazards due to specified chemical substances.

Specifications for the products listed in this catalog are subject to change without notice due to replacement or modification.

The diagrams and table data are examples of test results and are not guaranteed values.

For more details please check our digital tool database

P50F QuickFinder

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