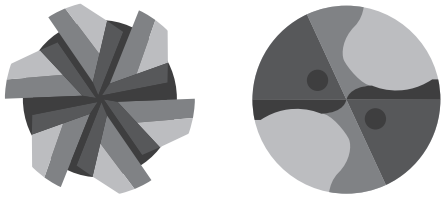




Carbide Tool Series

MILLING & DRILLING

Volume 4



2020~2021

1 TOOL MATERIAL



CARBIDE Tungsten carbide

2 TOLERANCE FOR DRILL DIAMETER



m7 Drill diameter tolerance

3 DRILL POINT ANGLE



120° Point angle

4 MILLING EXAMPLES



Suitable for contouring



Slotting ball end



Profiling



Side milling



Slotting square end



Profiling



Side milling



Side milling ball end



Ramping



Slotting corner radius



Trochoidal milling



Helical milling



High feed corner radius milling

5 HELIX ANGLE



45° Displays flute helix angle

6 SURFACE TREATMENT



TiAlN Titanium aluminium nitride coating



DIA Diamond coating



DLC Diamond like carbon



TiSiN Multi-layer coating for exotic nickel and titanium alloys



WD1 Multi-layer coating, for improved wear resistance

7 SHANK



SHRINK FIT Suitable for shrink fit system



Flatted shank



SHANK h6 Shank diameter tolerance



Whistle notch

8 MISCELLANEOUS



Centre cutting



HIGH SPEED High speed milling



R ± 0.01 Tolerance ball nose end mills



RF Suitable for roughing and finishing



Through coolant



Milling conditions



SPEED FEED Drilling conditions

OSG UK LIMITED

"Designed to offer exceptional performance and value for money"

As a leading company in the cutting tool industry OSG have been supplying the UK manufacturing sector for over 25 years, offering some of the most innovative and cost effective tooling solutions available.

Now as part of our ongoing commitment to the UK, OSG is proud to announce the completion of our new manufacturing facility in Nuneaton for the production of carbide endmills and drills, many of which are included in this catalogue.

Our highly trained engineers are committed to producing the highest quality products using the most advanced machinery available, continuously refining our cutting tool technology and improving product quality to help reduce cost to our customers.

Indeed, we actively encourage a close working relationship with our end user customers. This enables us not only to understand their present-day needs but also allows us to be in a position to respond to their needs as they evolve.

OSG design & quality, "Made in the UK"



4 **Index**
Including product selection guide

38 **End mills**
Carbide uncoated and coated












16 **Drilling**
Carbide uncoated, coated and through coolant

88 **End mills**
Cutting conditions

36 **Drilling**
Speeds and feeds

106 **Technical**
Conversion chart



	DESCRIPTION		DRILLING DEPTH						
	NAME	SPECIFICATION	Page	Range	≤2D	≤3D	≤4D	≤5D	≤8D
UNCOATED									
	HC-H-DRL	Stub, uncoated, general applications	32	1~12	✓	✓	✓		
	HYP-JOBBER	Jobber, uncoated, general applications	34	1~12.7	✓	✓	✓		
TiALN COATED									
	HYP-HP-3D	Stub, general applications	16	1~20	✓	✓			
	HYP-HP-5D	Regular, for general applications	22	1~20	✓	✓	✓	✓	
TiALN COATED THROUGH COOLANT									
	HYP-HPO-3D	Stub, through coolant	18	3~20	✓	✓	✓		
	HYP-HPO-5D	Regular, through coolant	24	3~20	✓	✓	✓	✓	
	HYP-HPO-8D	Long, through coolant	28	3~20			✓	✓	✓
TiALN COATED THROUGH COOLANT (WHISTLE NOTCH SHANK)									
	HYP-HPO-3D-HE	Stub, through coolant	20	3~20	✓	✓			
	HYP-HPO-5D-HE	Regular, through coolant	26	3~20	✓	✓	✓	✓	
SPOT DRILL									
	HYP-LDS	2 flute, 90°, 120° & 142°	30	3~20					
CHAMFERING TOOL									
	HYP-CHF	4 flute, 60°, 82°, 90° & 100°	31	4~12					

WORK MATERIAL

⊙ Excellent

○ Good

	Low carbon steel	Medium carbon steel	High carbon steel	Alloy steel	Hardened steel			Quenched and tempered steel			Stainless steel	Tool steel	Cast Iron	Ductile cast Iron	Copper	Aluminium	Aluminium alloy casting	Titanium	Titanium alloy	INCONEL®	Composite material	Magnesium alloy
				SCM	< 35 HRC	35-45 HRC	45-50 HRC	50-62 HRC	62-70 HRC	SUS	SKD SKS	GG	GGG	Cu	Al	AC	Ti			CFRP		
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DESCRIPTION

NAME

SPECIFICATION

Page

Range

1 FLUTE SQUARE END



HYP-F1

Single flute, short, centre cutting

76

3~12

2 FLUTE SQUARE END



HYP-EDS

2 flutes, regular, centre cutting

38

1~25



HYP-EDS-XCEED

2 flutes, regular, centre cutting, TiALN coated

38

1~25

WHILE STOCKS LAST



HYP-ZDS

2 flutes, regular, counterboring holes for bolts & pre drilled holes on angled surfaces

63

4~10

NEW SIZES



HYP-EDS-55

2 flutes, regular, 55° helix, centre cutting, for aluminium

64

3~25



HYP-AL-EDS

2 flutes, regular, centre cutting, for aluminium

68

6~25



HYP-EDL

2 flutes, long, centre cutting

39

3~25

NEW



HYP-EDL-XCEED

2 flutes, long, centre cutting, TiALN coated

39

3~25

NEW SIZES



HYP-EDL-55

2 flutes, long, 55° helix, centre cutting, for aluminium

65

3~25

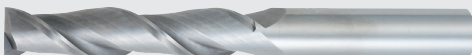


HYP-AL-EDL

2 flutes, long, centre cutting, for aluminium

68

6~25



HYP-EDXL

2 flutes, extra long, centre cutting

40

3~25

NEW



HYP-EDXL-XCEED

2 flutes, extra long, centre cutting, TiALN coated

40

3~12



HYP-AL-LS-EDS

2 flutes, long reach, centre cutting, for aluminium

69

3~12

WORK MATERIAL

⊙ Excellent

○ Good

	Carbon steel	Alloy Steel	Tool steel	Hardened and Pre hardened steels				Stainless steel	Cast Iron	Ductile Cast Iron	Copper alloy	Aluminium alloy	Graphite	Titanium alloy	Heat resistant alloy	Plastic
	~40HRC	~40HRC	~40HRC	~40HRC	~45HRC	~55HRC	~60HRC	~65HRC	SUS ~35HRC	GG ~350 HB	GGG ~350 HB					
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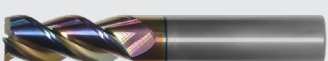


NAME

SPECIFICATION

Page

Range

3 FLUTE SQUARE END

		HYP-ETS	3 flutes, regular, centre cutting	43	1~25
		HYP-ETS-XCEED	3 flutes, regular, centre cutting, TiALN coated	43	1~25
NEW SIZES		HYP-ACE-STUB	3 flutes, stub, high performance tools for Aluminium	70	3~25
NEW		HYP-ACE-STUB-DLC	3 flutes, stub, high performance tools for Aluminium, DLC coated	70	3~25
NEW SIZES		HYP-ACE-REGULAR	3 flutes, regular, high performance tools for Aluminium	71	3~25
NEW		HYP-ACE-REGULAR-DLC	3 flutes, regular, high performance tools for Aluminium, DLC coated	71	3~25
NEW SIZES		HYP-ETS-55	3 flutes, regular, 55° helix, centre cutting, for aluminium	66	3~25
NEW SIZES		HYP-ETL-55	3 flutes, long, 55° helix, centre cutting, for aluminium	67	3~25

4 FLUTE SQUARE END

		HYP-EMS	4 flutes, regular, centre cutting	46	1~25
		HYP-EMS-XCEED	4 flutes, regular, centre cutting, TiALN coated	46	1~25
		HYP-EMS-(DIAMOND)	4 flutes, regular, centre cutting, Diamond coated	77	1~20
NEW		HYP-VG4-EMS	4 flutes, regular, centre cutting, TiSiN coated	78	3~20
NEW		HYP-VG4-LN-EMS	4 flutes, long with neck, variable lead, centre cutting, TiSiN coated	80	6~16
WHILE STOCKS LAST		HYP-EHS	4 flutes, regular, 50 deg helix, centre cutting, TiALN coated	61	4~20
WHILE STOCKS LAST		HYP-HI-EMS	4 flutes, regular, variable lead, centre cutting, TiALN coated	84	4~20
WHILE STOCKS LAST		HYP-HI-(W)EMS	4 flutes, regular, variable lead, centre cutting, TiALN coated	84	4~20
		HYP-EML	4 flutes, long, centre cutting	47	3~25
NEW		HYP-EML-XCEED	4 flutes, long, centre cutting, TiALN coated	47	3~25
		HYP-EMXL	4 flutes, extra long, centre cutting	48	3~25
NEW		HYP-EMXL-XCEED	4 flutes, extra long, centre cutting, TiALN coated	48	3~25

WORK MATERIAL

⊙ Excellent

○ Good

	Carbon steel	Alloy Steel	Tool steel	Hardened and Pre hardened steels				Stainless steel	Cast Iron	Ductile Cast Iron	Copper alloy	Aluminium alloy	Graphite	Titanium alloy	Heat resistant alloy	Plastic
	~40HRC	~40HRC	~40HRC	~40HRC	~45HRC	~55HRC	~60HRC	~65HRC	SUS ~35HRC	GG ~350 HB	GGG ~350 HB					
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DESCRIPTION

NAME

SPECIFICATION









Page

Range


2 FLUTE BALL END

	HYP-EBD	2 flutes, regular, ball end, centre cutting	51	1~25
	HYP-EBD-XCEED	2 flutes, regular, ball end, centre cutting, TiALN coated	51	1~25
	HYP-Ti-EBD	2 flutes, regular, ball end, centre cutting, TiALN coated, for titanium	83	3~12
	HYP-SB-EBD	2 flutes, regular, ball end, centre cutting, TiALN coated,	57	3~12
	HYP-EBDL	2 flutes, long, ball end, centre cutting	52	3~25
NEW 	HYP-EBDL-XCEED	2 flutes, long, ball end, centre cutting, TiALN coated	52	3~25
	HYP-EBDXL	2 flutes, extra long, ball end,centre cutting	53	3~25
NEW 	HYP-EBDXL-XCEED	2 flutes, extra long, ball end,centre cutting, TiALN coated	53	3~25
	HYP-AL-LS-EBD	2 flutes, long reach, ball end, centre cutting, for aluminium	69	3~12

4 FLUTE BALL END

	HYP-EBM	4 flutes, regular, ball end, centre cutting	54	1~25
	HYP-EBM-XCEED	4 flutes, regular, ball end, centre cutting, TiALN coated	54	1~25
	HYP-VG4-EBM	4 flutes, regular, ball end, variable lead, TiSiN coated	82	3~12
	HYP-EBM-DIAMOND	4 flutes, regular, ball end, centre cutting, Diamond coated	77	3~10
	HYP-EBML	4 flutes, long, ball end, centre cutting	55	3~25
NEW 	HYP-EBML-XCEED	4 flutes, long, ball end, centre cutting, TiALN coated	55	3~25
	HYP-EBMXL	4 flutes, extra long, ball end, centre cutting	56	3~25
NEW 	HYP-EBMXL-XCEED	4 flutes, extra long, ball end, centre cutting, TiALN coated	56	3~25

WORK MATERIAL

 Excellent
  Good

	Carbon steel	Alloy Steel	Tool steel	Hardened and Pre hardened steels						Stainless steel	Cast Iron	Ductile Cast Iron	Copper alloy	Aluminium alloy	Graphite	Titanium alloy	Heat resistant alloy	Plastic
	~40HRC	~40HRC	~40HRC	~40HRC	~45HRC	~55HRC	~60HRC	~65HRC	SUS ~35HRC	GG ~350 HB	GGG ~350 HB							
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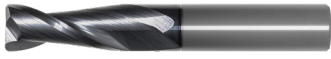
NAME

SPECIFICATION

Page

Range

2 FLUTE CORNER RADIUS



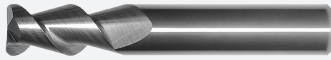
HYP-CR-EDS

2 flutes, corner radius, regular, centre cutting, TiALN coated

41

4~20

NEW



HYP-CR-EDS-55

2 flutes, corner radius, regular, 55° helix, centre cutting, for aluminium

64

6~16

NEW



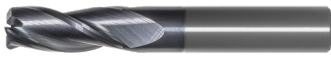
HYP-CR-EDL-55

2 flutes, corner radius, long 55° helix, centre cutting, for aluminium

65

6~16

3 FLUTE CORNER RADIUS



HYP-CR-ETS

3 flutes, corner radius, regular, centre cutting, TiALN coated

44

4~20

NEW



HYP-CR-ACE-STUB

3 flutes, corner radius, stub, high performance tools for aluminium

70

6~16



HYP-CR-ACE-STUB-DLC

3 flutes, corner radius, stub, high performance tools for aluminium, DLC coated

70

3~25

NEW



HYP-CR-ACE-REGULAR

3 flutes, corner radius, regular, high performance tools for aluminium

71

3~25



HYP-CR-ACE-REG-DLC

3 flutes, corner radius, regular, high performance tools for aluminium, DLC coated

71

3~25

NEW



HYP-CR-ETS-55

3 flutes, corner radius, regular, 55° helix, centre cutting, for aluminium

66

6~16

NEW



HYP-CR-ETL-55

3 flutes, corner radius, long, 55° helix, centre cutting, for aluminium

67

6~16

NEW



HYP-AL-PKE

3 flutes, reduced neck, pocket operation for aluminium and copper

74

6~16

NEW



HYP-AL-PKE-DLC

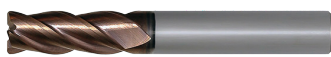
3 flutes, DLC coated, reduced neck, pocket operation for aluminium and copper

75

6~16

4 FLUTE CORNER RADIUS

NEW



HYP-VG4-CR-EMS

4 flutes, regular, corner radius, variable lead, centre cutting, TiSiN coated

78

3~20

NEW



HYP-LN-VG4-CR-EMS

4 flutes, long with neck, corner radius, variable lead, centre cutting, TiSiN coated

80

6~16



HYP-CR-EMS

4 flutes, corner radius, regular, centre cutting, TiALN coated

49

4~20



HYP-CR-EHS

4 flutes, regular, corner radius, 50 deg helix, centre cutting, TiALN coated

61

6~12

WHILE STOCKS LAST



HYP-CR-HI-(W)EMS

4 flutes, regular, corner radius, variable lead,centre cutting, TiALN coated

85

4~20



HYP-CR-HD-(W)EMS

4 flutes, regular, corner radius (0,25mm), variable lead,centre cutting, TiALN coated

81

6~20



HYP-HS-CRE

4 Flutes, stub, corner radius, high speed

62

6~12

WORK MATERIAL

⊙ Excellent

○ Good

Carbon steel	Alloy Steel	Tool steel	Hardened and Pre hardened steels						Stainless steel	Cast Iron	Ductile Cast Iron	Copper alloy	Aluminium alloy	Graphite	Titanium alloy	Heat resistant alloy	Plastic
			~40HRC	~40HRC	~40HRC	~40HRC	~45HRC	~55HRC									
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DESCRIPTION

NAME

SPECIFICATION

Page

Range

4 FLUTE ROUGHING



HYP-HP-(W)RESF

4 flutes, regular, roughing, centre cutting, TiAlN coated

59

6~25

NEW



HYP-CHB-EML

5 flute, long, with nick, for side milling <4D

58

6~20

MULTIPLE FLUTE FINISHING



HYP-ROCKET-MILL

4, 6 & 8 flutes, regular, finishing cutter for difficult to machine materials

60

3~25



HYP-LS-ROCKET-MILL

4, 6 & 8 flutes, long, finishing cutter for difficult to machine materials

60

6~25

PCD

NEW



HYP-EDS-PCD

2 flutes, regular, centre cutting

86

3~12

NEW



HYP-LN-EDS-PCD

2 flutes, long, centre cutting

86

6~12

NEW



HYP-EBD-PCD

2 flutes, regular, ball end, centre cutting

87

3~12

NEW



HYP-LN-EBD-PCD

2 flutes, long, ball end, centre cutting

87

6~12

WORK MATERIAL

⊙ Excellent

○ Good

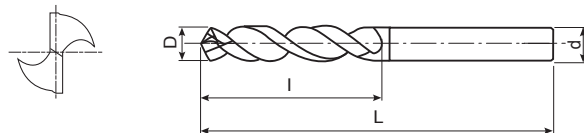
	Carbon steel	Alloy Steel	Tool steel	Hardened and Pre hardened steels					Stainless steel	Cast Iron	Ductile Cast Iron	Copper alloy	Aluminium alloy	Graphite	Titanium alloy	Heat resistant alloy	CFRP
	~40HRC	~40HRC	~40HRC	~40HRC	~45HRC	~55HRC	~60HRC	~65HRC	SUS ~35HRC	GG ~350 HB	GGG ~350 HB						
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HYP-HP-3D

COATED CARBIDE DRILL DRILLING 3XD

- ▶ OSG Standard, 2 flutes, for general applications
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Multi-layer coating for improved wear resistance

CARBIDE	WD1	30°	SHANK h6	140°
m7	SPEED FEED P 36	Icon key page 2		



HYP-HP-3D					
EDP	D	L	l	d	Price
30200100	1,0	35	7	3	£12.75
30200110	1,1	35	7	3	£12.75
30200120	1,2	35	8	3	£12.75
30200130	1,3	35	8	3	£12.75
30200140	1,4	35	9	3	£12.75
30200150	1,5	40	9	3	£12.75
30200160	1,6	40	10	3	£11.95
30200170	1,7	40	10	3	£11.95
30200180	1,8	40	11	3	£11.95
30200190	1,9	40	11	3	£11.95
30200200	2,0	45	13	3	£11.95
30200210	2,1	45	13	3	£11.95
30200220	2,2	45	13	3	£11.95
30200230	2,3	45	13	3	£11.95
30200240	2,4	45	15	3	£11.95
30200250	2,5	50	15	3	£11.95
30200260	2,6	50	15	3	£11.95
30200270	2,7	50	17	3	£11.95
30200280	2,8	50	17	3	£11.95
30200290	2,9	50	17	3	£11.95
30200300	3,0	62	20	6	£23.89
30200310	3,1	62	20	6	£23.89
30200317	3,17 (1/8)	62	20	6	£23.89
30200320	3,2	62	20	6	£23.89
30200330	3,3	62	20	6	£23.89
30200340	3,4	62	20	6	£23.89
30200350	3,5	62	20	6	£23.89
30200357	3,57 (9/64)	62	20	6	£23.89
30200360	3,6	62	20	6	£23.89
30200370	3,7	62	20	6	£23.89
30200380	3,8	66	24	6	£23.89
30200390	3,9	66	24	6	£23.89
30200397	3,97 (5/32)	66	24	6	£23.89
30200400	4,0	66	24	6	£23.89
30200410	4,1	66	24	6	£23.89
30200420	4,2	66	24	6	£23.89
30200430	4,3	66	24	6	£23.89
30200437	4,37 (11/64)	66	24	6	£23.89
30200440	4,4	66	24	6	£23.89
30200450	4,5	66	24	6	£23.89
30200455	4,55	66	24	6	£23.98

HYP-HP-3D					
EDP	D	L	l	d	Price
30200460	4,6	66	24	6	£23.89
30200470	4,7	66	24	6	£23.89
30200476	4,76 (3/16)	66	24	6	£23.89
30200480	4,8	66	28	6	£23.89
30200490	4,9	66	28	6	£23.89
30200500	5,0	66	28	6	£23.89
30200510	5,1	66	28	6	£23.89
30200516	5,16 (13/64)	66	28	6	£23.89
30200520	5,2	66	28	6	£23.89
30200530	5,3	66	28	6	£23.89
30200540	5,4	66	28	6	£23.89
30200550	5,5	66	28	6	£23.89
30200556	5,56 (7/32)	66	28	6	£23.89
30200560	5,6	66	28	6	£23.89
30200570	5,7	66	28	6	£23.89
30200580	5,8	66	28	6	£23.89
30200590	5,9	66	28	6	£23.89
30200595	5,95 (15/64)	66	28	6	£23.89
30200600	6,0	66	28	6	£23.89
30200610	6,1	79	34	8	£23.49
30200620	6,2	79	34	8	£23.49
30200630	6,3	79	34	8	£23.49
30200635	6,35 (1/4)	79	34	8	£23.49
30200640	6,4	79	34	8	£23.48
30200650	6,5	79	34	8	£23.49
30200660	6,6	79	34	8	£23.49
30200670	6,7	79	34	8	£23.49
30200675	6,75 (17/64)	79	34	8	£23.49
30200680	6,8	79	34	8	£23.49
30200690	6,9	79	34	8	£23.49
30200700	7,0	79	34	8	£23.49
30200710	7,1	79	34	8	£23.49
30200714	7,14 (9/32)	79	41	8	£23.49
30200720	7,2	79	41	8	£23.49
30200730	7,3	79	41	8	£23.49
30200740	7,4	79	41	8	£23.49
30200750	7,5	79	41	8	£23.49
30200754	7,54 (19/64)	79	41	8	£23.49
30200760	7,6	79	41	8	£23.49
30200770	7,7	79	41	8	£23.49
30200780	7,8	79	41	8	£23.49



HYP-HP-3D					
EDP	D	L	l	d	Price
30200790	7,9	79	41	8	£23.49
30200794	7,94 (5/16)	79	41	8	£23.49
30200800	8,0	79	41	8	£23.49
30200810	8,1	79	41	10	£26.74
30200820	8,2	79	41	10	£26.74
30200830	8,3	79	41	10	£26.74
30200833	8,33 (21/64)	89	47	10	£26.74
30200840	8,4	89	47	10	£26.74
30200850	8,5	89	47	10	£26.74
30200860	8,6	89	47	10	£26.74
30200870	8,7	89	47	10	£26.74
30200873	8,73 (11/32)	89	47	10	£26.74
30200880	8,8	89	47	10	£26.74
30200890	8,9	89	47	10	£26.74
30200900	9,0	89	47	10	£26.74
30200910	9,1	89	47	10	£26.74
30200913	9,13 (23/64)	89	47	10	£26.74
30200920	9,2	89	47	10	£26.74
30200930	9,3	89	47	10	£26.74
30200940	9,4	89	47	10	£26.74
30200950	9,5	89	47	10	£26.74
30200952	9,52 (3/8)	89	47	10	£26.74
30200960	9,6	89	47	10	£26.74
30200970	9,7	89	47	10	£26.74
30200980	9,8	89	47	10	£26.74
30200990	9,9	89	47	10	£26.74
30200992	9,92 (25/64)	89	47	10	£26.74
30201000	10,0	89	47	10	£26.74
30201010	10,1	89	47	12	£40.34
30201020	10,2	102	55	12	£40.34
30201030	10,3	102	55	12	£40.34
30201032	10,32 (13/32)	102	55	12	£40.34
30201040	10,4	102	55	12	£40.34
30201050	10,5	102	55	12	£40.34
30201060	10,6	102	55	12	£40.34
30201070	10,7	102	55	12	£40.34
30201072	10,72 (27/64)	102	55	12	£40.34

HYP-HP-3D					
EDP	D	L	l	d	Price
30201080	10,8	102	55	12	£40.34
30201090	10,9	102	55	12	£40.34
30201100	11,0	102	55	12	£40.34
30201110	11,1	102	55	12	£40.34
30201111	11,11 (7/16)	102	55	12	£40.34
30201120	11,2	102	55	12	£40.34
30201130	11,3	102	55	12	£40.34
30201140	11,4	102	55	12	£40.34
30201150	11,5	102	55	12	£40.34
30201151	11,51 (29/64)	102	55	12	£40.34
30201160	11,6	102	55	12	£40.34
30201170	11,7	102	55	12	£40.34
30201180	11,8	102	55	12	£40.34
30201190	11,9	102	55	12	£40.34
30201191	11,91 (15/32)	102	55	12	£40.34
30201200	12,0	102	55	12	£40.34
30201230	12,30 (31/64)	107	60	14	£53.44
30201250	12,5	107	60	14	£53.44
30201270	12,70 (1/2)	107	60	14	£53.44
30201300	13,0	107	60	14	£53.44
30201350	13,5	107	60	14	£53.44
30201400	14,0	107	60	14	£53.44
30201429	14,29 (9/16)	115	65	16	£69.17
30201450	14,5	115	65	16	£69.17
30201500	15,0	115	65	16	£69.17
30201550	15,5	115	65	16	£69.17
30201587	15,87 (5/8)	115	65	16	£69.17
30201600	16,0	115	65	16	£69.17
30201650	16,5	123	73	18	£121.97
30201700	17,0	123	73	18	£121.97
30201750	17,5	123	73	18	£121.97
30201800	18,0	123	73	18	£121.97
30201850	18,5	131	79	20	£136.15
30201900	19,0	131	79	20	£136.15
30201950	19,5	131	79	20	£136.15
30202000	20,0	131	79	20	£136.15

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		⊙	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Vinyl	CFRP
								○	○			

HYP-HPO-3D

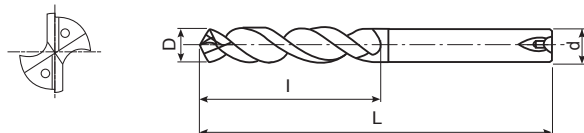
COATED CARBIDE DRILL WITH OIL HOLE DRILLING 3XD

- ▶ OSG Standard, 2 Flutes, for general applications
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Multi-layer coating for improved wear resistance



CARBIDE	WD1	30°	SHANK	h6	140°
m7	SPEED FEED	P 36			

Icon key page 2



HYP-HPO-3D					
EDP	D	L	l	d	Price
30210300	3,0	62	20	6	£29.19
30210310	3,1	62	20	6	£29.19
30210317	3,17 (1/8)	62	20	6	£29.19
30210320	3,2	62	20	6	£29.19
30210330	3,3	62	20	6	£29.19
30210340	3,4	62	20	6	£29.19
30210350	3,5	62	20	6	£29.19
30210357	3,57 (9/64)	62	20	6	£29.19
30210360	3,6	62	20	6	£29.19
30210370	3,7	62	20	6	£29.19
30210380	3,8	66	24	6	£29.19
30210390	3,9	66	24	6	£29.19
30210397	3,97 (5/32)	66	24	6	£29.19
30210400	4,0	66	24	6	£31.84
30210410	4,1	66	24	6	£31.84
30210420	4,2	66	24	6	£31.84
30210430	4,3	66	24	6	£31.84
30210437	4,37 (11/64)	66	24	6	£31.84
30210440	4,4	66	24	6	£31.84
30210450	4,5	66	24	6	£31.84
30210460	4,6	66	24	6	£31.84
30210465	4,65	66	24	6	£31.84
30210470	4,7	66	24	6	£31.84
30210476	4,76 (3/16)	66	24	6	£31.84
30210480	4,8	66	28	6	£31.84
30210490	4,9	66	28	6	£31.84
30210500	5,0	66	28	6	£31.84
30210510	5,1	66	28	6	£31.84
30210516	5,16 (13/64)	66	28	6	£31.84
30210520	5,2	66	28	6	£31.84
30210530	5,3	66	28	6	£31.84
30210540	5,4	66	28	6	£31.84
30210550	5,5	66	28	6	£31.84
30210555	5,55	66	28	6	£31.84
30210556	5,56 (7/32)	66	28	6	£31.84
30210560	5,6	66	28	6	£31.84
30210570	5,7	66	28	6	£31.84
30210580	5,8	66	28	6	£31.84
30210590	5,9	66	28	6	£31.84
30210595	5,95 (15/64)	66	28	6	£31.84
30210600	6,0	66	28	6	£31.84

HYP-HPO-3D					
EDP	D	L	l	d	Price
30210610	6,1	79	34	8	£42.22
30210620	6,2	79	34	8	£42.22
30210630	6,3	79	34	8	£42.22
30210635	6,35 (1/4)	79	34	8	£42.22
30210640	6,4	79	34	8	£42.22
30210650	6,5	79	34	8	£42.22
30210660	6,6	79	34	8	£42.22
30210670	6,7	79	34	8	£42.22
30210675	6,75 (17/64)	79	34	8	£42.22
30210680	6,8	79	34	8	£42.22
30210690	6,9	79	34	8	£42.22
30210700	7,0	79	34	8	£42.22
30210710	7,1	79	34	8	£42.22
30210714	7,14 (9/32)	79	41	8	£42.22
30210720	7,2	79	41	8	£42.22
30210730	7,3	79	41	8	£42.22
30210740	7,4	79	41	8	£42.22
30210750	7,5	79	41	8	£42.22
30210754	7,54 (19/64)	79	41	8	£42.22
30210760	7,6	79	41	8	£42.22
30210770	7,7	79	41	8	£42.22
30210780	7,8	79	41	8	£42.22
30210790	7,9	79	41	8	£42.22
30210794	7,94 (5/16)	79	41	8	£42.22
30210800	8,0	79	41	8	£42.22
30210810	8,1	79	41	10	£47.62
30210820	8,2	79	41	10	£47.62
30210830	8,3	79	41	10	£47.62
30210833	8,33 (21/64)	89	47	10	£47.62
30210840	8,4	89	47	10	£47.62
30210850	8,5	89	47	10	£47.62
30210860	8,6	89	47	10	£47.62
30210870	8,7	89	47	10	£47.62
30210873	8,73 (11/32)	89	47	10	£47.62
30210880	8,8	89	47	10	£47.62
30210890	8,9	89	47	10	£47.62
30210900	9,0	89	47	10	£47.62
30210910	9,1	89	47	10	£47.62
30210913	9,13 (23/64)	89	47	10	£47.62
30210920	9,2	89	47	10	£47.62
30210930	9,3	89	47	10	£47.62



HYP-HPO-3D

COATED CARBIDE DRILL WITH OIL HOLE DRILLING 3XD

HYP-HPO-3D					
EDP	D	L	l	d	Price
30210940	9,4	89	47	10	£47.62
30210950	9,5	89	47	10	£47.62
30210952	9,52 (3/8)	89	47	10	£47.62
30210960	9,6	89	47	10	£47.62
30210970	9,7	89	47	10	£47.62
30210980	9,8	89	47	10	£47.62
30210990	9,9	89	47	10	£47.62
30210992	9,92 (25/64)	89	47	10	£47.62
30211000	10,0	89	47	10	£47.62
30211010	10,1	89	47	12	£68.95
30211020	10,2	102	55	12	£68.95
30211030	10,3	102	55	12	£68.95
30211032	10,32 (13/32)	102	55	12	£68.95
30211040	10,4	102	55	12	£68.95
30211050	10,5	102	55	12	£68.95
30211060	10,6	102	55	12	£68.95
30211070	10,7	102	55	12	£68.95
30211072	10,72 (27/64)	102	55	12	£68.95
30211080	10,8	102	55	12	£68.95
30211090	10,9	102	55	12	£68.95
30211100	11,0	102	55	12	£68.95
30211110	11,1	102	55	12	£68.95
30211111	11,11 (7/16)	102	55	12	£68.95
30211120	11,2	102	55	12	£68.95
30211130	11,3	102	55	12	£68.95
30211140	11,4	102	55	12	£68.95
30211150	11,5	102	55	12	£68.95
30211151	11,51 (29/64)	102	55	12	£68.95
30211160	11,6	102	55	12	£68.95

HYP-HPO-3D					
EDP	D	L	l	d	Price
30211170	11,7	102	55	12	£68.95
30211180	11,8	102	55	12	£68.95
30211190	11,9	102	55	12	£68.95
30211191	11,91 (15/32)	102	55	12	£68.95
30211200	12,0	102	55	12	£68.95
30211230	12,30 (31/64)	107	60	14	£93.51
30211250	12,5	107	60	14	£93.51
30211270	12,70 (1/2)	107	60	14	£93.51
30211300	13,0	107	60	14	£93.51
30211350	13,5	107	60	14	£93.51
30211370	13,7	107	60	14	£93.74
30211400	14,0	107	60	14	£93.51
30211429	14,29 (9/16)	115	65	16	£121.69
30211450	14,5	115	65	16	£121.69
30211470	14,7	115	65	16	£121.99
30211500	15,0	115	65	16	£121.69
30211550	15,5	115	65	16	£121.69
30211570	15,7	115	65	16	£121.99
30211587	15,87 (5/8)	115	65	16	£121.69
30211600	16,0	115	65	16	£121.69
30211650	16,5	123	73	18	£195.87
30211700	17,0	123	73	18	£195.87
30211750	17,5	123	73	18	£195.87
30211800	18,0	123	73	18	£195.87
30211850	18,5	131	79	20	£212.20
30211900	19,0	131	79	20	£212.20
30211950	19,5	131	79	20	£212.20
30212000	20,0	131	79	20	£212.20

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		⊙	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Vinyl	CFRP
								○	○			

HYP-HPO-3D-HE

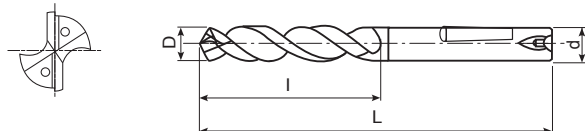
COATED CARBIDE DRILL, WHISTLE NOTCH SHANK WITH OIL HOLE DRILLING 3XD

- ▶ OSG Standard, 2 Flutes, for general applications
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Multi-layer coating for improved wear resistance



CARBIDE	WD1	30°	SHANK	h6	140°
m7		SPEED FEED	P 36		

Icon key page 2



HYP-HPO-3D-HE					
EDP	D	L	l	d	Price
30210300-HE	3,0	62	20	6	£30.65
30210310-HE	3,1	62	20	6	£30.65
30210317-HE	3,17 (1/8)	62	20	6	£30.65
30210320-HE	3,2	62	20	6	£30.65
30210330-HE	3,3	62	20	6	£30.65
30210340-HE	3,4	62	20	6	£30.65
30210350-HE	3,5	62	20	6	£30.65
30210357-HE	3,57 (9/64)	62	20	6	£30.65
30210360-HE	3,6	62	20	6	£30.65
30210370-HE	3,7	62	20	6	£30.65
30210380-HE	3,8	66	24	6	£30.65
30210390-HE	3,9	66	24	6	£30.65
30210397-HE	3,97 (5/32)	66	24	6	£30.65
30210400-HE	4,0	66	24	6	£33.44
30210410-HE	4,1	66	24	6	£33.44
30210420-HE	4,2	66	24	6	£33.44
30210430-HE	4,3	66	24	6	£33.44
30210437-HE	4,37 (11/64)	66	24	6	£33.44
30210440-HE	4,4	66	24	6	£33.44
30210450-HE	4,5	66	24	6	£33.44
30210460-HE	4,6	66	24	6	£33.44
30210470-HE	4,7	66	24	6	£33.44
30210476-HE	4,76 (3/16)	66	24	6	£33.44
30210480-HE	4,8	66	28	6	£33.44
30210490-HE	4,9	66	28	6	£33.44
30210500-HE	5,0	66	28	6	£33.44
30210510-HE	5,1	66	28	6	£33.44
30210516-HE	5,16 (13/64)	66	28	6	£33.44
30210520-HE	5,2	66	28	6	£33.44
30210530-HE	5,3	66	28	6	£33.44
30210540-HE	5,4	66	28	6	£33.44
30210550-HE	5,5	66	28	6	£33.44
30210556-HE	5,56 (7/32)	66	28	6	£33.44
30210560-HE	5,6	66	28	6	£33.44
30210570-HE	5,7	66	28	6	£33.44
30210580-HE	5,8	66	28	6	£33.44
30210590-HE	5,9	66	28	6	£33.44
30210595-HE	5,95 (15/64)	66	28	6	£33.44
30210600-HE	6,0	66	28	6	£33.44
30210610-HE	6,1	79	34	8	£44.34
30210620-HE	6,2	79	34	8	£44.34

HYP-HPO-3D-HE					
EDP	D	L	l	d	Price
30210630-HE	6,3	79	34	8	£44.34
30210635-HE	6,35 (1/4)	79	34	8	£44.34
30210640-HE	6,4	79	34	8	£44.34
30210650-HE	6,5	79	34	8	£44.34
30210660-HE	6,6	79	34	8	£44.34
30210670-HE	6,7	79	34	8	£44.34
30210675-HE	6,75 (17/64)	79	34	8	£44.34
30210680-HE	6,8	79	34	8	£44.34
30210690-HE	6,9	79	34	8	£44.34
30210700-HE	7,0	79	34	8	£44.34
30210710-HE	7,1	79	34	8	£44.34
30210714-HE	7,14 (9/32)	79	41	8	£44.34
30210720-HE	7,2	79	41	8	£44.34
30210730-HE	7,3	79	41	8	£44.34
30210740-HE	7,4	79	41	8	£44.34
30210750-HE	7,5	79	41	8	£44.34
30210754-HE	7,54 (19/64)	79	41	8	£44.34
30210760-HE	7,6	79	41	8	£44.34
30210770-HE	7,7	79	41	8	£44.34
30210780-HE	7,8	79	41	8	£44.34
30210790-HE	7,9	79	41	8	£44.34
30210794-HE	7,94 (5/16)	79	41	8	£44.34
30210800-HE	8,0	79	41	8	£44.34
30210810-HE	8,1	79	41	10	£49.98
30210820-HE	8,2	79	41	10	£49.98
30210830-HE	8,3	79	41	10	£49.98
30210833-HE	8,33 (21/64)	89	47	10	£49.98
30210840-HE	8,4	89	47	10	£49.98
30210850-HE	8,5	89	47	10	£49.98
30210860-HE	8,6	89	47	10	£49.98
30210870-HE	8,7	89	47	10	£49.98
30210873-HE	8,73 (11/32)	89	47	10	£49.98
30210880-HE	8,8	89	47	10	£49.98
30210890-HE	8,9	89	47	10	£49.98
30210900-HE	9,0	89	47	10	£49.98
30210910-HE	9,1	89	47	10	£49.98
30210913-HE	9,13 (23/64)	89	47	10	£49.98
30210920-HE	9,2	89	47	10	£49.98
30210930-HE	9,3	89	47	10	£49.98
30210940-HE	9,4	89	47	10	£49.98
30210950-HE	9,5	89	47	10	£49.98



HYP-HPO-3D-HE

COATED CARBIDE DRILL FLATED SHANK WITH OIL HOLE DRILLING 3XD

HYP-HPO-3D-HE					
EDP	D	L	I	d	Price
30210952-HE	9,52 (3/8)	89	47	10	£49.98
30210960-HE	9,6	89	47	10	£49.98
30210970-HE	9,7	89	47	10	£49.98
30210980-HE	9,8	89	47	10	£49.98
30210990-HE	9,9	89	47	10	£49.98
30210992-HE	9,92 (25/64)	89	47	10	£49.98
30211000-HE	10,0	89	47	10	£49.98
30211010-HE	10,1	89	47	12	£72.39
30211020-HE	10,2	102	55	12	£72.39
30211030-HE	10,3	102	55	12	£72.39
30211032-HE	10,32 (13/32)	102	55	12	£72.39
30211040-HE	10,4	102	55	12	£72.39
30211050-HE	10,5	102	55	12	£72.39
30211060-HE	10,6	102	55	12	£72.39
30211070-HE	10,7	102	55	12	£72.39
30211072-HE	10,72 (27/64)	102	55	12	£72.39
30211080-HE	10,8	102	55	12	£72.39
30211090-HE	10,9	102	55	12	£72.39
30211100-HE	11,0	102	55	12	£72.39
30211110-HE	11,1	102	55	12	£72.39
30211111-HE	11,11 (7/16)	102	55	12	£72.39
30211120-HE	11,2	102	55	12	£72.39
30211130-HE	11,3	102	55	12	£72.39
30211140-HE	11,4	102	55	12	£72.39
30211150-HE	11,5	102	55	12	£72.39
30211151-HE	11,51 (29/64)	102	55	12	£72.39

HYP-HPO-3D-HE					
EDP	D	L	I	d	Price
30211160-HE	11,6	102	55	12	£72.39
30211170-HE	11,7	102	55	12	£72.39
30211180-HE	11,8	102	55	12	£72.39
30211190-HE	11,9	102	55	12	£72.39
30211191-HE	11,91 (15/32)	102	55	12	£72.39
30211200-HE	12,0	102	55	12	£72.39
30211230-HE	12,30 (31/64)	107	60	14	£98.29
30211250-HE	12,5	107	60	14	£98.29
30211270-HE	12,70 (1/2)	107	60	14	£98.29
30211300-HE	13,0	107	60	14	£98.29
30211350-HE	13,5	107	60	14	£98.29
30211400-HE	14,0	107	60	14	£98.29
30211429-HE	14,29 (9/16)	115	65	16	£127.76
30211450-HE	14,5	115	65	16	£127.76
30211500-HE	15,0	115	65	16	£127.76
30211550-HE	15,5	115	65	16	£127.76
30211587-HE	15,87 (5/8)	115	65	16	£127.76
30211600-HE	16,0	115	65	16	£127.76
30211650-HE	16,5	123	73	18	£205.67
30211700-HE	17,0	123	73	18	£205.67
30211750-HE	17,5	123	73	18	£205.67
30211800-HE	18,0	123	73	18	£205.67
30211850-HE	18,5	131	79	20	£222.80
30211900-HE	19,0	131	79	20	£222.80
30211950-HE	19,5	131	79	20	£222.80
30212000-HE	20,0	131	79	20	£222.80

⊙ EXCELLENT ○ GOOD

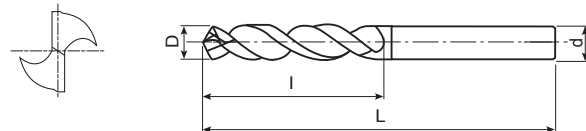
Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		⊙	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Vinyl	CFRP
								○	○			

HYP-HP-5D

COATED CARBIDE DRILL DRILLING 5XD

- ▶ OSG Standard, 2 flutes, for general applications
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Multi-layer coating for improved wear resistance

CARBIDE	WD1	30°	SHANK h6	140°
m7	SPEED FEED P 36	Icon key page 2		



HYP-HP-5D					
EDP	D	L	l	d	Price
31200100	1	38	9	3	£13.55
31200110	1,1	38	9	3	£13.55
31200120	1,2	38	11	3	£13.55
31200130	1,3	38	11	3	£13.55
31200140	1,4	38	12	3	£13.55
31200150	1,5	45	12	3	£13.55
31200160	1,6	45	14	3	£13.12
31200170	1,7	45	14	3	£13.12
31200180	1,8	45	16	3	£13.12
31200190	1,9	45	16	3	£13.12
31200200	2,0	50	18	3	£13.12
31200210	2,1	50	18	3	£12.88
31200220	2,2	52	20	3	£12.88
31200230	2,3	52	20	3	£12.88
31200240	2,4	52	22	3	£12.88
31200250	2,5	56	22	3	£12.88
31200260	2,6	56	22	3	£12.88
31200270	2,7	56	23	3	£12.88
31200280	2,8	56	23	3	£12.88
31200290	2,9	56	23	3	£12.88
31200300	3,0	66	28	6	£25.90
31200310	3,1	66	28	6	£25.90
31200317	3,17 (1/8)	66	28	6	£25.90
31200320	3,2	66	28	6	£25.90
31200330	3,3	66	28	6	£25.90
31200340	3,4	66	28	6	£25.90
31200350	3,5	66	28	6	£25.90
31200357	3,57 (9/64)	66	28	6	£25.90
31200360	3,6	66	28	6	£25.90
31200370	3,7	66	28	6	£25.90
31200380	3,8	74	36	6	£25.90
31200390	3,9	74	36	6	£25.90
31200397	3,97 (5/32)	74	36	6	£25.90
31200400	4,0	74	36	6	£25.90
31200410	4,1	74	36	6	£25.90
31200420	4,2	74	36	6	£25.90
31200430	4,3	74	36	6	£25.90
31200437	4,37 (11/64)	74	36	6	£25.90
31200440	4,4	74	36	6	£25.90
31200450	4,5	74	36	6	£25.90
31200460	4,6	74	36	6	£25.90

HYP-HP-5D					
EDP	D	L	l	d	Price
31200470	4,7	82	44	6	£25.90
31200476	4,76 (3/16)	82	44	6	£25.90
31200480	4,8	82	44	6	£25.90
31200490	4,9	82	44	6	£25.90
31200500	5,0	82	44	6	£25.90
31200510	5,1	82	44	6	£25.90
31200516	5,16 (13/64)	82	44	6	£25.90
31200520	5,2	82	44	6	£25.90
31200530	5,3	82	44	6	£25.90
31200540	5,4	82	44	6	£25.90
31200550	5,5	82	44	6	£25.90
31200556	5,56 (7/32)	82	44	6	£25.90
31200560	5,6	82	44	6	£25.90
31200570	5,7	82	44	6	£25.90
31200580	5,8	82	44	6	£25.90
31200590	5,9	82	44	6	£25.90
31200595	5,95 (15/64)	82	44	6	£25.90
31200600	6,0	82	44	6	£25.90
31200610	6,1	91	53	8	£29.70
31200620	6,2	91	53	8	£29.70
31200630	6,3	91	53	8	£29.70
31200635	6,35 (1/4)	91	53	8	£29.70
31200640	6,4	91	53	8	£29.70
31200650	6,5	91	53	8	£29.70
31200660	6,6	91	53	8	£29.70
31200670	6,7	91	53	8	£29.70
31200675	6,75 (17/64)	91	53	8	£29.70
31200680	6,8	91	53	8	£29.70
31200690	6,9	91	53	8	£29.70
31200700	7,0	91	53	8	£29.70
31200710	7,1	91	53	8	£29.70
31200714	7,14 (9/32)	91	53	8	£29.70
31200720	7,2	91	53	8	£29.70
31200730	7,3	91	53	8	£29.70
31200740	7,4	91	53	8	£29.70
31200750	7,5	91	53	8	£29.70
31200754	7,54 (19/64)	91	53	8	£29.70
31200760	7,6	91	53	8	£29.70
31200770	7,7	91	53	8	£29.70
31200780	7,8	91	53	8	£29.70
31200790	7,9	91	53	8	£29.70



HYP-HP-5D					
EDP	D	L	l	d	Price
31200794	7,94 (5/16)	91	53	8	£29.70
31200800	8,0	91	53	8	£29.70
31200810	8,1	103	61	8	£31.18
31200820	8,2	103	61	10	£31.18
31200830	8,3	103	61	10	£31.18
31200833	8,33 (21/64)	103	61	10	£31.18
31200840	8,4	103	61	10	£31.18
31200850	8,5	103	61	10	£31.18
31200860	8,6	103	61	10	£31.18
31200870	8,7	103	61	10	£31.18
31200873	8,73 (11/32)	103	61	10	£31.18
31200880	8,8	103	61	10	£31.18
31200890	8,9	103	61	10	£31.18
31200900	9,0	103	61	10	£31.18
31200910	9,1	103	61	10	£31.18
31200913	9,13 (23/64)	103	61	10	£31.18
31200920	9,2	103	61	10	£31.18
31200930	9,3	103	61	10	£31.18
31200940	9,4	103	61	10	£31.18
31200950	9,5	103	61	10	£31.18
31200952	9,52 (3/8)	103	61	10	£31.18
31200960	9,6	103	61	10	£31.18
31200970	9,7	103	61	10	£31.18
31200980	9,8	103	61	10	£31.18
31200990	9,9	103	61	10	£31.18
31200992	9,92 (25/64)	103	61	10	£31.18
31201000	10,0	103	61	10	£31.18
31201010	10,1	118	71	12	£45.93
31201020	10,2	118	71	12	£45.93
31201030	10,3	118	71	12	£45.93
31201032	10,32 (13/32)	118	71	12	£45.93
31201040	10,4	118	71	12	£45.93
31201050	10,5	118	71	12	£45.93
31201060	10,6	118	71	12	£45.93
31201070	10,7	118	71	12	£45.93
31201072	10,72 (27/64)	118	71	12	£45.93

HYP-HP-5D					
EDP	D	L	l	d	Price
31201080	10,8	118	71	12	£45.93
31201090	10,9	118	71	12	£45.93
31201100	11,0	118	71	12	£45.93
31201110	11,1	118	71	12	£45.93
31201111	11,11 (7/16)	118	71	12	£45.93
31201120	11,2	118	71	12	£45.93
31201130	11,3	118	71	12	£45.93
31201140	11,4	118	71	12	£45.93
31201150	11,5	118	71	12	£45.93
31201151	11,51 (29/64)	118	71	12	£45.93
31201160	11,6	118	71	12	£45.93
31201170	11,7	118	71	12	£45.93
31201180	11,8	118	71	12	£45.93
31201190	11,9	118	71	12	£45.93
31201191	11,91 (15/32)	118	71	12	£45.93
31201200	12,0	118	71	12	£45.93
31201230	12,3 (31/64)	124	77	14	£60.25
31201250	12,5	124	77	14	£60.25
31201270	12,7 (1/2)	124	77	14	£60.25
31201300	13,0	124	77	14	£60.25
31201350	13,5	124	77	14	£60.25
31201400	14,0	124	77	14	£60.25
31201429	14,29 (9/16)	133	83	16	£77.08
31201450	14,5	133	83	16	£77.08
31201500	15,0	133	83	16	£77.08
31201550	15,5	133	83	16	£77.08
31201587	15,87 (5/8)	133	83	16	£77.08
31201600	16,0	133	93	18	£77.08
31201650	16,5	143	93	18	£125.59
31201700	17,0	143	93	18	£125.59
31201750	17,5	143	93	18	£125.59
31201800	18,0	143	93	18	£125.59
31201850	18,5	153	101	20	£145.95
31201900	19,0	153	101	20	£145.95
31201950	19,5	153	101	20	£145.95
31202000	20,0	153	101	20	£145.95

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		⊙	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Vinyl	CFRP
								○	○			

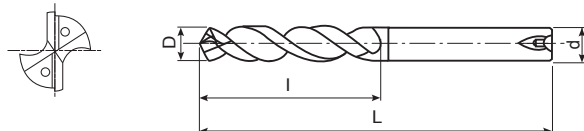
HYP-HPO-5D

COATED CARBIDE DRILL WITH OIL HOLE DRILLING 5XD

- ▶ OSG Standard, 2 flutes, for general applications
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Multi-layer coating for improved wear resistance



CARBIDE	WD1	30°	SHANK h6		140°
	SPEED FEED P 36	Icon key page 2			



HYP-HPO-5D					
EDP	D	L	l	d	Price
30220300	3,0	66	28	6	£37.34
30220310	3,1	66	28	6	£37.34
30220317	3,17 (1/8)	66	28	6	£37.34
30220320	3,2	66	28	6	£37.34
30220330	3,3	66	28	6	£37.34
30220340	3,4	66	28	6	£37.34
30220350	3,5	66	28	6	£37.34
30220357	3,57 (9/64)	66	28	6	£37.34
30220360	3,6	66	28	6	£37.34
30220370	3,7	66	28	6	£37.34
30220380	3,8	74	36	6	£37.34
30220390	3,9	74	36	6	£37.34
30220397	3,97 (5/32)	74	36	6	£37.34
30220400	4,0	74	36	6	£40.74
30220410	4,1	74	36	6	£40.74
30220420	4,2	74	36	6	£40.74
30220430	4,3	74	36	6	£40.74
30220437	4,37 (11/64)	74	36	6	£40.74
30220440	4,4	74	36	6	£40.74
30220450	4,5	74	36	6	£40.74
30220460	4,6	74	36	6	£40.74
30220465	4,65	74	36	6	£40.74
30220470	4,7	82	44	6	£40.74
30220476	4,76 (3/16)	82	44	6	£40.74
30220480	4,8	82	44	6	£40.74
30220490	4,9	82	44	6	£40.74
30220500	5,0	82	44	6	£40.74
30220510	5,1	82	44	6	£40.74
30220516	5,16 (13/64)	82	44	6	£40.74
30220520	5,2	82	44	6	£40.74
30220530	5,3	82	44	6	£40.74
30220540	5,4	82	44	6	£40.74
30220550	5,5	82	44	6	£40.74
30220555	5,55	82	44	6	£40.74
30220556	5,56 (7/32)	82	44	6	£40.74
30220560	5,6	82	44	6	£40.74
30220570	5,7	82	44	6	£40.74
30220580	5,8	82	44	6	£40.74
30220590	5,9	82	44	6	£40.74
30220595	5,95 (15/64)	82	44	6	£40.74
30220600	6,0	82	44	6	£40.74

HYP-HPO-5D					
EDP	D	L	l	d	Price
30220610	6,1	91	53	8	£47.15
30220620	6,2	91	53	8	£47.15
30220630	6,3	91	53	8	£47.15
30220635	6,35 (1/4)	91	53	8	£47.15
30220640	6,4	91	53	8	£47.15
30220650	6,5	91	53	8	£47.15
30220660	6,6	91	53	8	£47.15
30220670	6,7	91	53	8	£47.15
30220675	6,75 (17/64)	91	53	8	£47.15
30220680	6,8	91	53	8	£47.15
30220690	6,9	91	53	8	£47.15
30220700	7,0	91	53	8	£47.15
30220710	7,1	91	53	8	£47.15
30220714	7,14 (9/32)	91	53	8	£47.15
30220720	7,2	91	53	8	£47.15
30220730	7,3	91	53	8	£47.15
30220740	7,4	91	53	8	£47.15
30220750	7,5	91	53	8	£47.15
30220754	7,54 (19/64)	91	53	8	£47.15
30220760	7,6	91	53	8	£47.15
30220770	7,7	91	53	8	£47.15
30220780	7,8	91	53	8	£47.15
30220790	7,9	91	53	8	£47.15
30220794	7,94 (5/16)	91	53	8	£47.15
30220800	8,0	91	53	8	£47.15
30220810	8,1	103	61	8	£52.36
30220820	8,2	103	61	10	£52.36
30220830	8,3	103	61	10	£52.36
30220833	8,33 (21/64)	103	61	10	£52.36
30220840	8,4	103	61	10	£52.36
30220850	8,5	103	61	10	£52.36
30220860	8,6	103	61	10	£52.36
30220870	8,7	103	61	10	£52.36
30220873	8,73 (11/32)	103	61	10	£52.36
30220880	8,8	103	61	10	£52.36
30220890	8,9	103	61	10	£52.36
30220900	9,0	103	61	10	£52.36
30220910	9,1	103	61	10	£52.36
30220913	9,13 (23/64)	103	61	10	£52.36
30220920	9,2	103	61	10	£52.36
30220925	9,25	103	61	10	£52.49



HYP-HPO-5D

COATED CARBIDE DRILL WITH OIL HOLE DRILLING 5XD

HYP-HPO-5D					
EDP	D	L	I	d	Price
30220930	9,3	103	61	10	£52.36
30220940	9,4	103	61	10	£52.36
30220950	9,5	103	61	10	£52.36
30220952	9,52 (3/8)	103	61	10	£52.36
30220960	9,6	103	61	10	£52.36
30220970	9,7	103	61	10	£52.36
30220980	9,8	103	61	10	£52.36
30220990	9,9	103	61	10	£52.36
30220992	9,92 (25/64)	103	61	10	£52.36
30221000	10,0	103	61	10	£52.36
30221010	10,1	118	71	12	£76.50
30221020	10,2	118	71	12	£76.50
30221030	10,3	118	71	12	£76.50
30221032	10,32 (13/32)	118	71	12	£76.50
30221040	10,4	118	71	12	£76.50
30221050	10,5	118	71	12	£76.50
30221060	10,6	118	71	12	£76.50
30221070	10,7	118	71	12	£76.50
30221072	10,72 (27/64)	118	71	12	£76.50
30221080	10,8	118	71	12	£76.50
30221090	10,9	118	71	12	£76.50
30221100	11,0	118	71	12	£76.50
30221110	11,1	118	71	12	£76.50
30221111	11,11 (7/16)	118	71	12	£76.50
30221120	11,2	118	71	12	£76.50
30221130	11,3	118	71	12	£76.50
30221140	11,4	118	71	12	£76.50
30221150	11,5	118	71	12	£76.50
30221151	11,51 (29/64)	118	71	12	£76.50

HYP-HPO-5D					
EDP	D	L	I	d	Price
30221160	11,6	118	71	12	£76.50
30221170	11,7	118	71	12	£76.50
30221180	11,8	118	71	12	£76.50
30221190	11,9	118	71	12	£76.50
30221191	11,91 (15/32)	118	71	12	£76.50
30221200	12,0	118	71	12	£76.50
30221230	12,3 (31/64)	124	77	14	£103.28
30221250	12,5	124	77	14	£103.28
30221270	12,7 (1/2)	124	77	14	£103.28
30221300	13,0	124	77	14	£103.28
30221350	13,5	124	77	14	£103.28
30221370	13,7	124	77	14	£103.54
30221400	14,0	124	77	14	£103.28
30221429	14,29 (9/16)	133	83	16	£132.54
30221450	14,5	133	83	16	£132.54
30221470	14,7	133	83	16	£132.87
30221500	15,0	133	83	16	£132.54
30221550	15,5	133	83	16	£132.54
30221570	15,7	133	83	16	£132.87
30221587	15,87 (5/8)	133	83	16	£132.54
30221600	16,0	133	83	16	£132.54
30221650	16,5	143	93	18	£195.87
30221700	17,0	143	93	18	£195.87
30221750	17,5	143	93	18	£195.87
30221800	18,0	143	93	18	£195.87
30221850	18,5	153	101	20	£245.31
30221900	19,0	153	101	20	£245.31
30221950	19,5	153	101	20	£245.93
30222000	20,0	153	101	20	£245.31

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		⊙	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Vinyl	CFRP
								○	○			

HYP-HPO-5D-HE

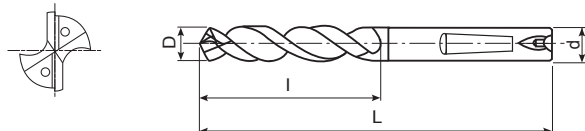
COATED CARBIDE DRILL, WHISTLE NOTCH SHANK WITH OIL HOLE DRILLING 5XD

- ▶ OSG Standard, 2 flutes, for general applications
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Multi-layer coating for improved wear resistance



CARBIDE	WD1	30°	SHANK	h6	140°
m7		SPEED FEED	P 36		

Icon key page 2



HYP-HPO-5D-HE					
EDP	D	L	l	d	Price
30220300-HE	3	66	28	6	£38.47
30220310-HE	3,1	66	28	6	£38.47
30220317-HE	3,17 (1/8)	66	28	6	£38.47
30220320-HE	3,2	66	28	6	£38.47
30220330-HE	3,3	66	28	6	£38.47
30220340-HE	3,4	66	28	6	£38.47
30220350-HE	3,5	66	28	6	£38.47
30220357-HE	3,57 (9/64)	66	28	6	£38.47
30220360-HE	3,6	66	28	6	£38.47
30220370-HE	3,7	66	28	6	£38.47
30220380-HE	3,8	74	36	6	£38.47
30220390-HE	3,9	74	36	6	£38.47
30220397-HE	3,97 (5/32)	74	36	6	£38.47
30220400-HE	4	74	36	6	£41.96
30220410-HE	4,1	74	36	6	£41.96
30220420-HE	4,2	74	36	6	£41.96
30220430-HE	4,3	74	36	6	£41.96
30220437-HE	4,37 (11/64)	74	36	6	£41.96
30220440-HE	4,4	74	36	6	£41.96
30220450-HE	4,5	74	36	6	£41.96
30220460-HE	4,6	74	36	6	£41.96
30220470-HE	4,7	82	44	6	£41.96
30220476-HE	4,76 (3/16)	82	44	6	£41.96
30220480-HE	4,8	82	44	6	£41.96
30220490-HE	4,9	82	44	6	£41.96
30220500-HE	5	82	44	6	£41.96
30220510-HE	5,1	82	44	6	£41.96
30220516-HE	5,16 (13/64)	82	44	6	£41.96
30220520-HE	5,2	82	44	6	£41.96
30220530-HE	5,3	82	44	6	£41.96
30220540-HE	5,4	82	44	6	£41.96
30220550-HE	5,5	82	44	6	£41.96
30220556-HE	5,56 (7/32)	82	44	6	£42.07
30220560-HE	5,6	82	44	6	£41.96
30220570-HE	5,7	82	44	6	£41.96
30220580-HE	5,8	82	44	6	£41.96
30220590-HE	5,9	82	44	6	£41.96
30220595-HE	5,95 (15/64)	82	44	6	£41.96
30220600-HE	6	82	44	6	£41.96
30220610-HE	6,1	91	53	8	£48.56
30220620-HE	6,2	91	53	8	£48.56

HYP-HPO-5D-HE					
EDP	D	L	l	d	Price
30220630-HE	6,3	91	53	8	£48.56
30220635-HE	6,35 (1/4)	91	53	8	£48.56
30220640-HE	6,4	91	53	8	£48.56
30220650-HE	6,5	91	53	8	£48.56
30220660-HE	6,6	91	53	8	£48.56
30220670-HE	6,7	91	53	8	£48.56
30220675-HE	6,75 (17/64)	91	53	8	£48.56
30220680-HE	6,8	91	53	8	£48.56
30220690-HE	6,9	91	53	8	£48.56
30220700-HE	7	91	53	8	£48.56
30220710-HE	7,1	91	53	8	£48.56
30220714-HE	7,14 (9/32)	91	53	8	£48.56
30220720-HE	7,2	91	53	8	£48.56
30220730-HE	7,3	91	53	8	£48.56
30220740-HE	7,4	91	53	8	£48.56
30220750-HE	7,5	91	53	8	£48.56
30220754-HE	7,54 (19/64)	91	53	8	£48.56
30220760-HE	7,6	91	53	8	£48.56
30220770-HE	7,7	91	53	8	£48.56
30220780-HE	7,8	91	53	8	£48.56
30220790-HE	7,9	91	53	8	£48.56
30220794-HE	7,94 (5/16)	91	53	8	£48.56
30220800-HE	8	91	53	8	£48.56
30220810-HE	8,1	103	61	8	£53.94
30220820-HE	8,2	103	61	10	£53.94
30220830-HE	8,3	103	61	10	£53.94
30220833-HE	8,33 (21/64)	103	61	10	£53.94
30220840-HE	8,4	103	61	10	£53.94
30220850-HE	8,5	103	61	10	£53.94
30220860-HE	8,6	103	61	10	£53.94
30220870-HE	8,7	103	61	10	£53.94
30220873-HE	8,73 (11/32)	103	61	10	£53.94
30220880-HE	8,8	103	61	10	£53.94
30220890-HE	8,9	103	61	10	£53.94
30220900-HE	9	103	61	10	£53.94
30220910-HE	9,1	103	61	10	£53.94
30220913-HE	9,13 (23/64)	103	61	10	£53.94
30220920-HE	9,2	103	61	10	£53.94
30220930-HE	9,3	103	61	10	£53.94
30220940-HE	9,4	103	61	10	£53.94
30220950-HE	9,5	103	61	10	£53.94



HYP-HPO-5D-HE

COATED CARBIDE DRILL FLATED SHANK WITH OIL HOLE DRILLING 5XD

HYP-HPO-5D-HE					
EDP	D	L	l	d	Price
30220952-HE	9,52 (3/8)	103	61	10	£53.94
30220960-HE	9,6	103	61	10	£53.94
30220970-HE	9,7	103	61	10	£53.94
30220980-HE	9,8	103	61	10	£53.94
30220990-HE	9,9	103	61	10	£53.94
30220992-HE	9,92 (25/64)	103	61	10	£53.94
30221000-HE	10	103	61	10	£53.94
30221010-HE	10,1	118	71	12	£78.79
30221020-HE	10,2	118	71	12	£78.79
30221030-HE	10,3	118	71	12	£78.79
30221032-HE	10,32 (13/32)	118	71	12	£78.79
30221040-HE	10,4	118	71	12	£78.79
30221050-HE	10,5	118	71	12	£78.79
30221060-HE	10,6	118	71	12	£78.79
30221070-HE	10,7	118	71	12	£78.79
30221072-HE	10,72 (27/64)	118	71	12	£78.79
30221080-HE	10,8	118	71	12	£78.79
30221090-HE	10,9	118	71	12	£78.79
30221100-HE	11	118	71	12	£78.79
30221110-HE	11,1	118	71	12	£78.79
30221111-HE	11,11 (7/16)	118	71	12	£78.79
30221120-HE	11,2	118	71	12	£78.79
30221130-HE	11,3	118	71	12	£78.79
30221140-HE	11,4	118	71	12	£78.79
30221150-HE	11,5	118	71	12	£78.79
30221151-HE	11,51 (29/64)	118	71	12	£78.79

HYP-HPO-5D-HE					
EDP	D	L	l	d	Price
30221160-HE	11,6	118	71	12	£78.79
30221170-HE	11,7	118	71	12	£78.79
30221180-HE	11,8	118	71	12	£78.79
30221190-HE	11,9	118	71	12	£78.79
30221191-HE	11,91 (15/32)	118	71	12	£78.79
30221200-HE	12	118	71	12	£78.79
30221230-HE	12,3 (31/64)	124	77	14	£106.38
30221250-HE	12,5	124	77	14	£106.38
30221270-HE	12,7 (1/2)	124	77	14	£106.38
30221300-HE	13	124	77	14	£106.38
30221350-HE	13,5	124	77	14	£106.38
30221400-HE	14	124	77	14	£106.38
30221429-HE	14,29 (9/16)	133	83	16	£136.51
30221450-HE	14,5	133	83	16	£136.51
30221500-HE	15	133	83	16	£136.51
30221550-HE	15,5	133	83	16	£136.51
30221587-HE	15,87 (5/8)	133	83	16	£136.51
30221600-HE	16	133	83	16	£136.51
30221650-HE	16,5	143	93	18	£201.75
30221700-HE	17	143	93	18	£201.75
30221750-HE	17,5	143	93	18	£201.75
30221800-HE	18	143	93	18	£201.75
30221850-HE	18,5	153	101	20	£252.67
30221900-HE	19	153	101	20	£252.67
30221950-HE	19,5	153	101	20	£252.67
30222000-HE	20	153	101	20	£252.67

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		⊙	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Vinyl	CFRP
								○	○			

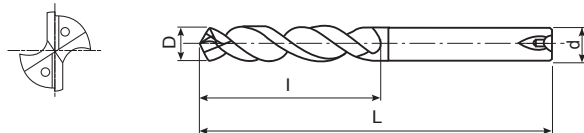
HYP-HPO-8D

COATED CARBIDE DRILL WITH OIL HOLE DRILLING 8XD

- ▶ OSG Standard, 2 flutes, for general applications
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Multi-layer coating for improved wear resistance



CARBIDE	WD1	30°	SHANK h6		140°
	SPEED FEED P 36	Icon key page 2			



HYP-HPO-8D					
EDP	D	L	l	d	Price
32210300	3.0	70	30	4	£52.44
32210310	3.1	74	34	4	£52.44
32210317	3.17 (1/8)	74	34	4	£52.44
32210320	3.2	74	34	4	£52.44
32210330	3.3	74	34	4	£52.44
32210340	3.4	74	34	4	£52.44
32210350	3.5	80	40	4	£54.01
32210357	3.57 (9/64)	80	40	4	£54.01
32210360	3.6	80	40	4	£54.01
32210370	3.7	80	40	4	£54.01
32210380	3.8	80	40	4	£54.01
32210390	3.9	80	40	4	£54.01
32210397	3.97 (5/32)	80	40	4	£54.01
32210400	4.0	80	40	4	£54.01
32210410	4.1	90	43	6	£55.16
32210420	4.2	90	43	6	£55.16
32210430	4.3	90	43	6	£55.16
32210437	4.37 (11/64)	90	43	6	£55.16
32210440	4.4	90	50	6	£55.16
32210450	4.5	90	50	6	£55.16
32210460	4.6	90	50	6	£55.16
32210470	4.7	90	50	6	£55.16
32210476	4.76 (3/16)	90	50	6	£55.16
32210480	4.8	90	50	6	£55.16
32210490	4.9	90	50	6	£55.16
32210500	5.0	90	50	6	£66.19
32210510	5.1	97	57	6	£69.63
32210516	5.16 (13/64)	97	57	8	£69.63
32210520	5.2	97	57	6	£69.63
32210530	5.3	97	57	8	£69.63
32210540	5.4	97	57	6	£69.63
32210550	5.5	97	57	8	£69.63
32210556	5.56 (7/32)	97	57	6	£69.63
32210560	5.6	97	57	8	£69.63
32210570	5.7	97	57	6	£69.63
32210580	5.8	97	57	8	£69.63
32210590	5.9	97	57	6	£69.63
32210595	5.95 (15/64)	97	57	8	£69.63
32210600	6.0	97	57	6	£69.63
32210610	6.1	106	66	8	£81.99
32210620	6.2	106	66	8	£81.99

HYP-HPO-8D					
EDP	D	L	l	d	Price
32210630	6.3	106	66	8	£81.99
32210635	6.35 (1/4)	106	66	8	£81.99
32210640	6.4	106	66	8	£81.99
32210650	6.5	106	66	8	£81.99
32210660	6.6	106	66	8	£81.99
32210670	6.7	106	66	8	£81.99
32210675	6.75 (17/64)	106	66	8	£81.99
32210680	6.8	106	66	8	£81.99
32210690	6.9	116	76	8	£81.99
32210700	7.0	116	76	8	£81.99
32210710	7.1	116	76	8	£81.99
32210714	7.14 (9/32)	116	76	8	£81.99
32210720	7.2	116	76	8	£81.99
32210730	7.3	116	76	8	£81.99
32210740	7.4	116	76	8	£81.99
32210750	7.5	116	76	8	£81.99
32210754	7.54 (19/64)	116	76	8	£81.99
32210760	7.6	116	76	8	£81.99
32210770	7.7	116	76	8	£81.99
32210780	7.8	116	76	8	£81.99
32210790	7.9	116	76	8	£81.99
32210794	7.94 (5/16)	116	76	8	£81.99
32210800	8.0	116	76	8	£81.99
32210810	8.1	131	87	10	£114.79
32210820	8.2	131	87	10	£114.79
32210830	8.3	131	87	10	£114.79
32210833	8.33 (21/64)	131	87	10	£114.79
32210840	8.4	131	87	10	£114.79
32210850	8.5	131	87	10	£114.79
32210860	8.6	131	87	10	£114.79
32210870	8.7	131	87	10	£114.79
32210873	8.73 (11/32)	131	87	10	£114.79
32210880	8.8	131	87	10	£114.79
32210890	8.9	131	87	10	£114.79
32210900	9.0	131	87	10	£114.79
32210910	9.1	139	95	10	£114.79
32210913	9.13 (23/64)	139	95	10	£114.79
32210920	9.2	139	95	10	£114.79
32210930	9.3	139	95	10	£114.79
32210940	9.4	139	95	10	£114.79
32210950	9.5	139	95	10	£114.79



HYP-HPO-8D

COATED CARBIDE DRILL WITH OIL HOLE DRILLING 8XD

HYP-HPO-8D					
EDP	D	L	I	d	Price
32210952	9,52 (3/8)	139	95	10	£114.79
32210960	9.6	139	95	10	£114.79
32210970	9.7	139	95	10	£114.79
32210980	9.8	139	95	10	£114.79
32210990	9.9	139	95	10	£114.79
32210992	9.92 (25/64)	139	95	10	£114.79
32211000	10.0	139	95	10	£114.79
32211010	10.1	155	106	12	£165.26
32211020	10,2	155	106	12	£165.26
32211030	10.3	155	106	12	£165.26
32211032	10.32 (13/32)	155	106	12	£165.26
32211040	10.4	155	106	12	£165.26
32211050	10,5	155	106	12	£165.26
32211060	10.6	155	106	12	£165.26
32211070	10.7	155	106	12	£165.26
32211072	10.72 (27/64)	155	106	12	£165.26
32211080	10.8	155	106	12	£165.26
32211090	10.9	155	106	12	£165.26
32211100	11.0	155	106	12	£165.26
32211110	11.1	163	114	12	£165.26
32211111	11.11 (7/16)	163	114	12	£165.26
32211120	11.2	163	114	12	£165.26
32211130	11.3	163	114	12	£165.26
32211140	11.4	163	114	12	£165.26
32211150	11,5	163	114	12	£165.26
32211151	11.51 (29/64)	163	114	12	£165.26

HYP-HPO-8D					
EDP	D	L	I	d	Price
32211160	11.6	163	114	12	£165.26
32211170	11.7	163	114	12	£165.26
32211180	11.8	163	114	12	£165.26
32211190	11.9	163	114	12	£165.26
32211191	11.91 (15/32)	163	114	12	£165.26
32211200	12.0	163	114	12	£165.26
32211230	12.3 (31/64)	182	133	14	£234.54
32211250	12,5	182	133	14	£234.54
32211270	12,7 (1/2)	182	133	14	£234.54
32211300	13.0	182	133	14	£234.54
32211350	13,5	182	133	14	£234.54
32211400	14.0	182	133	14	£234.54
32211429	14.29 (9/16)	204	152	16	£324.50
32211450	14,5	204	152	16	£324.50
32211500	15.0	204	152	16	£324.50
32211550	15,5	204	152	16	£324.50
32211587	15.87 (5/8)	204	152	16	£324.50
32211600	16.0	204	152	16	£366.49
32211650	16.5	223	171	18	£366.49
32211700	17.0	223	171	18	£366.49
32211750	17.5	223	171	18	£366.49
32211800	18.0	223	171	18	£470.19
32211850	18.5	244	190	20	£470.19
32211900	19.0	244	190	20	£470.19
32211950	19.5	244	190	20	£470.19
32212000	20.0	244	190	20	£470.19

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		⊙	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Vinyl	CFRP
								○	○			

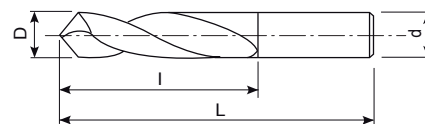
HYP-LDS

MICRO GRAIN CARBIDE SPOTTING & CHAMFERING DRILL

- ▶ OSG Standard, 2 Flutes , for general applications
- ▶ Material : Micro Grain Carbide.
- ▶ Surface treatment : Bright



CARBIDE	20°	SHANK h6	90°	120°	142°
SPEED FEED P 37	Icon key page 2				



HYP-LDS (90deg)						
EDP	D	L	l	d	a	Price
20900300	3	35	8	3	90	£12.10
20900400	4	40	10	4	90	£14.85
20900600	6	50	16	6	90	£20.32
20900800	8	60	23	8	90	£26.72

HYP-LDS (90deg)						
EDP	D	L	l	d	a	Price
20901000	10	70	24	10	90	£42.59
20901200	12	70	25	12	90	£50.37
20901600	16	80	30	16	90	£91.64
20902000	20	100	35	20	90	£161.02

HYP-LDS (120deg)						
EDP	D	L	l	d	a	Price
21200300	3	35	8	3	120	£12.10
21200400	4	40	10	4	120	£14.85
21200600	6	50	16	6	120	£20.32
21200800	8	60	23	8	120	£26.72

HYP-LDS (120deg)						
EDP	D	L	l	d	a	Price
21201000	10	70	24	10	120	£42.59
21201200	12	70	25	12	120	£50.37
21201600	16	80	30	16	120	£91.64
21202000	20	100	35	20	120	£161.02

HYP-LDS (142deg)						
EDP	D	L	l	d	a	Price
21420300	3	35	8	3	142	£12.10
21420400	4	40	10	4	142	£14.85
21420600	6	50	16	6	142	£20.32
21420800	8	60	23	8	142	£26.72

HYP-LDS (142deg)						
EDP	D	L	l	d	a	Price
21421000	10	70	24	10	142	£42.59
21421200	12	70	25	12	142	£50.37
21421600	16	80	30	16	142	£91.64
21422000	20	100	35	20	142	£161.02

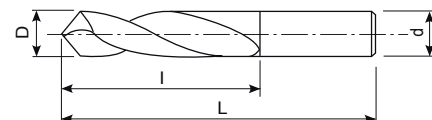
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
⊙	⊙	⊙	⊙	⊙	○				○		⊙	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Vinyl	CFRP
○					○			○	○			

- ▶ OSG Standard, 4 Flutes , for general applications
- ▶ Material : Micro Grain Carbide.
- ▶ Surface treatment : Bright / TiALN Coated



CARBIDE	TiALN	SHANK h6	60°	82°
90°	100°	SPEED FEED P 37	Icon key page 2	



HYP-CHF-Bright (60deg)			HYP-CHF-XCEED (60deg)			HYP-CHF-Bright (82deg)			HYP-CHF-XCEED (82deg)		
EDP	D	Price	EDP	D	Price	EDP	D	Price	EDP	D	Price
205-157560	4	£32.70	205-15756011	4	£38.60	205-157582	4	£32.70	205-15758211	4	£38.60
205-196860	5	£35.68	205-19686011	5	£41.52	205-196882	5	£35.68	205-19688211	5	£41.52
205-236260	6	£39.44	205-23626011	6	£45.28	205-236282	6	£39.44	205-23628211	6	£45.28
205-315060	8	£54.78	205-31506011	8	£64.73	205-315082	8	£54.78	205-31508211	8	£64.73
205-393760	10	£65.96	205-39376011	10	£75.06	205-393782	10	£65.96	205-39378211	10	£75.06
205-472460	12	£68.82	205-47246011	12	£77.87	205-472482	12	£68.82	205-47248211	12	£77.87

HYP-CHF-Bright (90deg)			HYP-CHF-XCEED (90deg)			HYP-CHF-Bright (100deg)			HYP-CHF-XCEED (100deg)		
EDP	D	Price	EDP	D	Price	EDP	D	Price	EDP	D	Price
205-157590	4	£32.70	205-15759011	4	£38.60	205-1575100	4	£32.70	205-157510011	4	£38.60
205-196890	5	£35.68	205-19689011	5	£41.52	205-1968100	5	£35.68	205-196810011	5	£41.52
205-236290	6	£39.44	205-23629011	6	£45.28	205-2362100	6	£39.44	205-236210011	6	£45.28
205-315090	8	£54.78	205-31509011	8	£64.73	205-3150100	8	£54.78	205-315010011	8	£64.73
205-393790	10	£65.96	205-39379011	10	£75.06	205-3937100	10	£65.96	205-393710011	10	£75.06
205-472490	12	£68.82	205-47249011	12	£77.87	205-4724100	12	£68.82	205-472410011	12	£77.87

Dimensions		
D	L	d
4	54	4
5	54	5
6	72	6
8	81	8
10	93	10
12	108	12

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
⊙	⊙	⊙	⊙	⊙	○				○		⊙	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Vinyl	CFRP
○					○			○	○			

HC-H-DRL

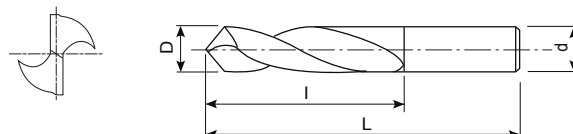
SLOW SPIRAL CARBIDE DRILL

- ▶ OSG Standard, 2 flutes , stub, for difficult to drill materials
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright



CARBIDE	12°	SHANK h6	135°	m7	SPEED FEED P 37
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Drill dia tol : +.000 / -.013mm
Icon key page 2



H-CH-DRL					
EDP	D	L	l	d	Price
215-0394	1	38	13	1	£7.94
215-0433	1,1	38	13	1,1	£7.94
215-0472	1,2	38	13	1,2	£7.94
215-0512	1,3	38	13	1,3	£7.94
215-0551	1,4	38	13	1,4	£7.94
215-0591	1,5	38	13	1,5	£7.16
215-0630	1,6	43	18	1,6	£7.58
215-0669	1,7	43	18	1,7	£7.58
215-0709	1,8	43	18	1,8	£7.58
215-0748	1,9	43	18	1,9	£7.58
215-0787	2	45	19	2	£7.58
215-0827	2,1	45	19	2,1	£8.57
215-0866	2,2	45	19	2,2	£8.57
215-0906	2,3	45	19	2,3	£8.57
215-0945	2,4	46	21	2,4	£8.57
215-0984	2,5	46	21	2,5	£8.57
215-1024	2,6	46	21	2,6	£9.63
215-1063	2,7	46	21	2,7	£9.63
215-1102	2,8	48	22	2,8	£9.63
215-1142	2,9	48	22	2,9	£9.63
215-1181	3	48	22	3	£9.63
215-1220	3,1	48	22	3,1	£11.36
215-1260	3,2	52	24	3,2	£11.36
215-1299	3,3	52	24	3,3	£11.36
215-1339	3,4	52	24	3,4	£11.36
215-1378	3,5	52	24	3,5	£11.36
215-1417	3,6	52	25	3,6	£12.83
215-1457	3,7	52	25	3,7	£12.83
215-1496	3,8	52	25	3,8	£12.83
215-1535	3,9	52	25	3,9	£12.83
215-1575	4	53	27	4	£12.83
215-1614	4,1	53	27	4,1	£15.15
215-1654	4,2	53	27	4,2	£15.15
215-1693	4,3	53	27	4,3	£15.15
215-1732	4,4	55	29	4,4	£15.15
215-1772	4,5	55	29	4,5	£15.15
215-1811	4,6	55	29	4,6	£16.50
215-1850	4,7	57	29	4,7	£16.50
215-1890	4,8	57	30	4,8	£16.50
215-1929	4,9	57	30	4,9	£16.50
215-1968	5	57	30	5	£16.50

H-CH-DRL					
EDP	D	L	l	d	Price
215-2008	5,1	57	30	5,1	£18.72
215-2047	5,2	60	32	5,2	£18.72
215-2087	5,3	60	32	5,3	£18.72
215-2126	5,4	60	32	5,4	£18.72
215-2165	5,5	60	32	5,5	£18.72
215-2205	5,6	61	33	5,6	£21.14
215-2244	5,7	61	33	5,7	£21.14
215-2283	5,8	61	33	5,8	£21.14
215-2323	5,9	61	33	5,9	£21.14
215-2362	6	61	33	6	£21.14
215-2402	6,1	63	35	6,1	£23.62
215-2441	6,2	63	35	6,2	£23.62
215-2480	6,3	63	35	6,3	£23.62
215-2520	6,4	63	35	6,4	£23.62
215-2559	6,5	63	35	6,5	£23.62
215-2598	6,6	67	37	6,6	£27.64
215-2638	6,7	67	37	6,7	£27.64
215-2677	6,8	68	38	6,8	£27.64
215-2717	6,9	68	38	6,9	£27.64
215-2756	7	68	38	7	£27.64
215-2795	7,1	69	38	7,1	£30.32
215-2835	7,2	70	40	7,2	£30.32
215-2874	7,3	70	40	7,3	£30.32
215-2913	7,4	70	40	7,4	£30.32
215-2953	7,5	70	40	7,5	£30.32
215-2992	7,6	71	41	7,6	£34.32
215-3031	7,7	71	41	7,7	£34.32
215-3071	7,8	71	41	7,8	£34.32
215-3110	7,9	71	41	7,9	£34.32
215-3150	8	71	41	8	£34.32
215-3189	8,1	75	43	8,1	£37.62
215-3228	8,2	75	43	8,2	£37.62
215-3268	8,3	75	43	8,3	£37.62
215-3307	8,4	76	43	8,4	£37.62
215-3346	8,5	76	43	8,5	£37.62
215-3386	8,6	76	43	8,6	£43.50
215-3425	8,7	76	43	8,7	£43.50
215-3465	8,8	78	44	8,8	£43.50
215-3504	8,9	78	44	8,9	£43.50
215-3543	9	78	44	9	£43.50
215-3583	9,1	78	44	9,1	£48.30



H-CH-DRL					
EDP	D	L	I	d	Price
215-3622	9,2	79	46	9,2	£48.30
215-3661	9,3	79	46	9,3	£48.30
215-3701	9,4	79	46	9,4	£48.30
215-3740	9,5	79	46	9,5	£48.30
215-3780	9,6	83	48	9,6	£57.23
215-3819	9,7	83	48	9,7	£57.23
215-3858	9,8	83	48	9,8	£57.23
215-3898	9,9	83	48	9,9	£57.23
215-3937	10	83	48	10	£57.23
215-3976	10,1	84	49	10,1	£61.51
215-4016	10,2	84	49	10,2	£61.51
215-4055	10,3	84	49	10,3	£61.51
215-4094	10,4	86	51	10,4	£61.51
215-4134	10,5	86	51	10,5	£61.51
215-4173	10,6	86	51	10,6	£70.97

H-CH-DRL					
EDP	D	L	I	d	Price
215-4213	10,7	86	51	10,7	£70.97
215-4252	10,8	87	52	10,8	£70.97
215-4291	10,9	87	52	10,9	£70.97
215-4331	11	87	52	11	£70.97
215-4370	11,1	87	52	11,1	£77.12
215-4409	11,2	90	54	11,2	£77.12
215-4449	11,3	90	54	11,3	£77.12
215-4488	11,4	90	54	11,4	£77.12
215-4528	11,5	90	54	11,5	£77.12
215-4567	11,6	92	54	11,6	£79.79
215-4606	11,7	92	54	11,7	£79.79
215-4646	11,8	92	54	11,8	£79.79
215-4685	11,9	92	54	11,9	£79.79
215-4724	12	92	54	12	£79.79

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○	○	○	○	○	○			○	○		○	○
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plastic	Vinyl	CFRP
					○			○	○			

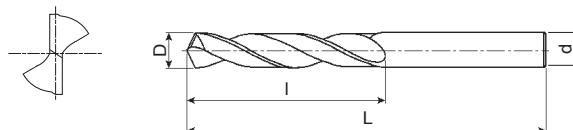
HYP-JOBBER

CARBIDE DRILL

- ▶ OSG Standard, 2 flutes ,for general applications
- ▶ Material : Carbide
- ▶ Surface treatment : Bright



Icon key page 2



HYP-JOBBER					
EDP	D	L	l	d	Price
71150100	1	38,1	15,9	1,0	£5.89
71150110	1,1	38,1	19,1	1,1	£5.89
71150120	1,2	38,1	19,1	1,2	£5.89
71150130	1,3	38,1	19,1	1,3	£5.89
71150140	1,4	38,1	19,1	1,4	£5.89
71150150	1,5	38,1	19,1	1,5	£5.89
71150160	1,6	38,1	19,1	1,6	£5.89
71150170	1,7	38,1	19,1	1,7	£5.89
71150180	1,8	44,5	22,2	1,8	£5.89
71150190	1,9	44,5	22,2	1,9	£5.89
71150200	2	44,5	22,2	2,0	£5.89
71150210	2,1	44,5	22,2	2,1	£5.89
71150220	2,2	50,8	25,4	2,2	£5.89
71150230	2,3	50,8	25,4	2,3	£5.89
71150238	3/32(2,38)	50,8	25,4	3/32(2,38)	£5.89
71150240	2,4	50,8	25,4	2,4	£5.89
71150250	2,5	50,8	25,4	2,5	£5.89
71150260	2,6	57,2	31,8	2,6	£5.89
71150270	2,7	57,2	31,8	2,7	£5.89
71150278	7/64(2,78)	57,2	31,8	7/64(2,78)	£5.89
71150280	2,8	57,2	31,8	2,8	£5.89
71150290	2,9	57,2	31,8	2,9	£5.89
71150300	3	57,2	31,8	3,0	£5.89
71150310	3,1	57,2	31,8	3,1	£6.56
71150317	1/8(3,17)	57,2	31,8	1/8(3,17)	£6.56
71150320	3,2	57,2	31,8	3,2	£6.56
71150330	3,3	57,2	31,8	3,3	£6.56
71150340	3,4	63,5	34,9	3,4	£6.56
71150350	3,5	63,5	34,9	3,5	£6.56
71150357	9/64(3,57)	63,5	34,9	9/64(3,57)	£6.56
71150360	3,6	63,5	34,9	3,6	£7.56
71150370	3,7	63,5	34,9	3,7	£7.56
71150380	3,8	63,5	34,9	3,8	£7.56
71150390	3,9	63,5	34,9	3,9	£7.56
71150397	5/32(3,97)	63,5	34,9	5/32(3,97)	£7.56
71150400	4	63,5	34,9	4,0	£7.56
71150410	4,1	63,5	34,9	4,1	£9.02
71150420	4,2	69,9	41,3	4,2	£9.02
71150430	4,3	69,9	41,3	4,3	£9.02
71150437	11/64(4,37)	69,9	41,3	11/64(4,37)	£9.02
71150440	4,4	69,9	41,3	4,4	£9.02

HYP-JOBBER					
EDP	D	L	l	d	Price
71150450	4,5	69,9	41,3	4,5	£9.02
71150460	4,6	69,9	41,3	4,6	£11.79
71150470	4,7	69,9	41,3	4,7	£11.79
71150476	3/16(4,76)	69,9	41,3	3/16(4,76)	£11.79
71150480	4,8	69,9	41,3	4,8	£11.79
71150490	4,9	69,9	41,3	4,9	£11.79
71150500	5	76,2	44,5	5,0	£11.79
71150510	5,1	76,2	44,5	5,1	£13.53
71150520	5,2	76,2	44,5	5,2	£13.53
71150530	5,3	76,2	44,5	5,3	£13.53
71150540	5,4	76,2	44,5	5,4	£13.53
71150550	5,5	76,2	44,5	5,5	£13.53
71150560	5,6	76,2	44,5	5,6	£16.36
71150570	5,7	76,2	44,5	5,7	£16.36
71150580	5,8	76,2	44,5	5,8	£16.36
71150590	5,9	82,6	50,8	5,9	£16.36
71150600	6	82,6	50,8	6,0	£16.36
71150610	6,1	82,6	50,8	6,1	£18.21
71150620	6,2	82,6	50,8	6,2	£18.21
71150630	6,3	82,6	50,8	6,3	£18.21
71150635	1/4(6,35)	82,6	50,8	1/4(6,35)	£18.21
71150640	6,4	82,6	50,8	6,4	£18.21
71150650	6,5	82,6	50,8	6,5	£18.21
71150660	6,6	88,9	54,0	6,6	£19.71
71150670	6,7	88,9	54,0	6,7	£19.71
71150680	6,8	88,9	54,0	6,8	£19.71
71150690	6,9	88,9	54,0	6,9	£19.71
71150700	7	88,9	54,0	7,0	£19.71
71150710	7,1	88,9	54,0	7,1	£21.23
71150714	9/32(7,14)	88,9	54,0	9/32(7,14)	£21.23
71150720	7,2	88,9	54,0	7,2	£21.23
71150730	7,3	88,9	54,0	7,3	£21.23
71150740	7,4	88,9	54,0	7,4	£21.23
71150750	7,5	95,3	60,3	7,5	£21.23
71150760	7,6	95,3	60,3	7,6	£22.72
71150770	7,7	95,3	60,3	7,7	£22.72
71150780	7,8	95,3	60,3	7,8	£22.72
71150790	7,9	95,3	60,3	7,9	£22.72
71150794	5/16(7,94)	95,3	60,3	5/16(7,94)	£22.72
71150800	8	95,3	60,3	8,0	£22.72
71150810	8,1	95,3	60,3	8,1	£23.92



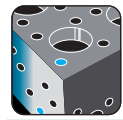
HYP-JOBBER					
EDP	D	L	I	d	Price
71150820	8,2	95,3	60,3	8,2	£23.92
71150830	8,3	101,6	36,5	8,3	£23.92
71150840	8,4	101,6	36,5	8,4	£23.92
71150850	8,5	101,6	36,5	8,5	£23.92
71150860	8,6	101,6	36,5	8,6	£26.09
71150870	8,7	101,6	36,5	8,7	£26.09
71150873	11/32(8,73)	101,6	36,5	11/32(8,73)	£26.09
71150880	8,8	101,6	36,5	8,8	£26.09
71150890	8,9	101,6	36,5	8,9	£26.09
71150900	9	101,6	36,5	9,0	£26.09
71150910	9,1	101,6	36,5	9,1	£32.10
71150920	9,2	108,0	69,9	9,2	£32.10
71150930	9,3	108,0	69,9	9,3	£32.10
71150940	9,4	108,0	69,9	9,4	£32.10
71150950	9,5	108,0	69,9	9,5	£32.10
71150960	9,6	108,0	69,9	9,6	£38.05
71150970	9,7	114,3	73,0	9,7	£38.05
71150980	9,8	114,3	73,0	9,8	£38.05
71150990	9,9	114,3	73,0	9,9	£38.05
71151000	10	114,3	73,0	10,0	£38.05
71151010	10,1	114,3	73,0	10,1	£41.72
71151020	10,2	114,3	73,0	10,2	£41.72

HYP-JOBBER					
EDP	D	L	I	d	Price
71151030	10,3	114,3	73,0	10,3	£41.72
71151040	10,4	114,3	73,0	10,4	£41.72
71151050	10,5	114,3	73,0	10,5	£41.72
71151060	10,6	114,3	73,0	10,6	£52.91
71151070	10,7	114,3	73,0	10,7	£52.91
71151080	10,8	114,3	73,0	10,8	£52.91
71151090	10,9	114,3	73,0	10,9	£52.91
71151100	11	114,3	73,0	11,0	£52.91
71151110	11,1	114,3	73,0	11,1	£57.95
71151111	7/16(11,11)	114,3	73,0	7/16(11,11)	£57.95
71151120	11,2	120,7	76,2	11,2	£57.95
71151130	11,3	120,7	76,2	11,3	£57.95
71151140	11,4	120,7	76,2	11,4	£57.95
71151150	11,5	120,7	76,2	11,5	£57.95
71151160	11,6	120,7	76,2	11,6	£57.95
71151170	11,7	120,7	76,2	11,7	£57.95
71151180	11,8	120,7	76,2	11,8	£57.95
71151190	11,9	120,7	76,2	11,9	£57.95
71151191	15/32(11,91)	120,7	76,2	15/32(11,91)	£57.95
71151200	12	120,7	76,2	12,0	£57.95
71151270	1/2(12,7)	120,7	76,2	1/2(12,7)	£70.10

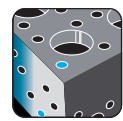
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○	○	○	○	○	○						○	
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plastic	Vinyl	CFRP
				○	○							

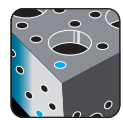
DRILLING CONDITIONS



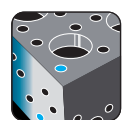
Vc	Steel			HYP-HP-3D / HYP-HPO-3D / HE		
	< 700 N/mm ²	< 850 N/mm ²	< 1000 N/mm ²	Cu	A5052 / A7075	Al < 13% Si < 130 HB
	100 ~ 120 m/min	80 ~ 110 m/min	70 ~ 100 m/min	50 ~ 90 m/min	60 ~ 110 m/min	120 ~ 220 m/min
Ø	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)
3	0,09~0,12	0,09~0,12	0,09~0,12	0,02~0,03	0,09~0,20	0,09~0,28
4	0,10~0,15	0,10~0,15	0,10~0,15	0,02~0,04	0,10~0,24	0,10~0,38
5	0,12~0,18	0,12~0,18	0,12~0,18	0,03~0,05	0,12~0,28	0,12~0,40
6	0,14~0,20	0,14~0,20	0,14~0,20	0,03~0,06	0,14~0,34	0,14~0,48
8	0,16~0,24	0,16~0,24	0,16~0,24	0,04~0,08	0,16~0,38	0,16~0,53
10	0,18~0,27	0,18~0,27	0,18~0,27	0,05~0,10	0,18~0,45	0,18~0,63
12	0,20~0,30	0,20~0,30	0,20~0,30	0,06~0,12	0,20~0,53	0,20~0,75
14	0,22~0,35	0,22~0,35	0,22~0,35	0,08~0,16	0,22~0,57	0,22~0,81
16	0,25~0,36	0,25~0,36	0,25~0,36	0,10~0,18	0,25~0,61	0,25~0,85
18	0,28~0,38	0,28~0,38	0,28~0,38	0,12~0,20	0,28~0,63	0,28~0,90
20	0,30~0,40	0,30~0,40	0,30~0,40	0,20~0,28	0,28~0,68	0,30~0,98



Vc	GG (G)			SUS	HYP-HP-3D / HYP-HPO-3D / HE		
	< 180 HB	< 300 HB	< 820 HB	High-Alloy Steel	Special Alloys	Hardened Steel	
	< 180 HB	< 300 HB	< 820 HB	< 1200 N/mm ²	< 30 HRC	< 55 HRC	
Ø	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	
3	0,12~0,15	0,12~0,15	0,09~0,12	0,07~0,11	0,05~0,09	0,03~0,05	
4	0,13~0,18	0,13~0,18	0,10~0,15	0,08~0,13	0,06~0,10	0,04~0,06	
5	0,15~0,22	0,15~0,22	0,12~0,18	0,10~0,15	0,08~0,12	0,05~0,07	
6	0,18~0,25	0,18~0,25	0,14~0,20	0,12~0,18	0,09~0,15	0,05~0,07	
8	0,20~0,30	0,20~0,30	0,16~0,24	0,14~0,22	0,12~0,20	0,06~0,08	
10	0,23~0,33	0,23~0,33	0,18~0,27	0,15~0,25	0,13~0,23	0,07~0,10	
12	0,25~0,38	0,25~0,38	0,20~0,30	0,17~0,26	0,14~0,24	0,09~0,12	
14	0,30~0,43	0,30~0,43	0,22~0,35	0,18~0,30	0,15~0,26	0,10~0,13	
16	0,35~0,50	0,35~0,50	0,25~0,36	0,20~0,32	0,16~0,26	0,10~0,13	
18	0,38~0,55	0,38~0,55	0,28~0,38	0,23~0,33	0,18~0,28	0,12~0,16	
20	0,40~0,63	0,40~0,63	0,30~0,40	0,25~0,35	0,20~0,30	0,14~0,18	



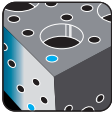
Vc	Steel			HYP-HP-5D / HYP-HPO-5D / HE / HYP-HPO-8D		
	< 700 N/mm ²	< 850 N/mm ²	< 1000 N/mm ²	Cu	A5052 / A7075	Al < 13% Si < 130 HB
	100 ~ 120 m/min	80 ~ 110 m/min	70 ~ 100 m/min	50 ~ 90 m/min	60 ~ 110 m/min	120 ~ 220 m/min
Ø	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)
3	0,09~0,12	0,09~0,12	0,09~0,12	0,02~0,03	0,09~0,20	0,09~0,28
4	0,10~0,15	0,10~0,15	0,10~0,15	0,02~0,04	0,10~0,24	0,10~0,38
5	0,12~0,18	0,12~0,18	0,12~0,18	0,03~0,05	0,12~0,28	0,12~0,40
6	0,14~0,20	0,14~0,20	0,14~0,20	0,03~0,06	0,14~0,34	0,14~0,48
8	0,16~0,24	0,16~0,24	0,16~0,24	0,04~0,08	0,16~0,38	0,16~0,53
10	0,18~0,27	0,18~0,27	0,18~0,27	0,05~0,10	0,18~0,45	0,18~0,63
12	0,20~0,30	0,20~0,30	0,20~0,30	0,06~0,12	0,20~0,53	0,20~0,75
14	0,22~0,35	0,22~0,35	0,22~0,35	0,08~0,16	0,22~0,57	0,22~0,81
16	0,25~0,36	0,25~0,36	0,25~0,36	0,10~0,18	0,25~0,61	0,25~0,85
18	0,28~0,38	0,28~0,38	0,28~0,38	0,12~0,20	0,28~0,63	0,28~0,90
20	0,30~0,40	0,30~0,40	0,30~0,40	0,20~0,28	0,28~0,68	0,30~0,98

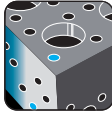


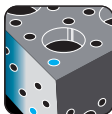
Vc	GG (G)			SUS	HYP-HP-5D / HYP-HPO-5D / HE / HYP-HPO-8D		
	< 180 HB	< 300 HB	< 820 HB	High-Alloy Steel	Special Alloys	Hardened Steel	
	< 180 HB	< 300 HB	< 820 HB	< 1200 N/mm ²	< 30 HRC	< 55 HRC	
Ø	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	
3	0,12~0,15	0,12~0,15	0,09~0,12	0,07~0,11	0,05~0,09	0,03~0,05	
4	0,13~0,18	0,13~0,18	0,10~0,15	0,08~0,13	0,06~0,10	0,04~0,06	
5	0,15~0,22	0,15~0,22	0,12~0,18	0,10~0,15	0,08~0,12	0,05~0,07	
6	0,18~0,25	0,18~0,25	0,14~0,20	0,12~0,18	0,09~0,15	0,05~0,07	
8	0,20~0,30	0,20~0,30	0,16~0,24	0,14~0,22	0,12~0,20	0,06~0,08	
10	0,23~0,33	0,23~0,33	0,18~0,27	0,15~0,25	0,13~0,23	0,07~0,10	
12	0,25~0,38	0,25~0,38	0,20~0,30	0,17~0,26	0,14~0,24	0,09~0,12	
14	0,30~0,43	0,30~0,43	0,22~0,35	0,18~0,30	0,15~0,26	0,10~0,13	
16	0,35~0,50	0,35~0,50	0,25~0,36	0,20~0,32	0,16~0,26	0,10~0,13	
18	0,38~0,55	0,38~0,55	0,28~0,38	0,23~0,33	0,18~0,28	0,12~0,16	
20	0,40~0,63	0,40~0,63	0,30~0,40	0,25~0,35	0,20~0,30	0,14~0,18	

When using non-through coolant drills we recommend that you reduce speeds / feeds by 10~15%

DRILLING CONDITIONS

														HYP-LDS / CHF			
	C≤0,2%		Carbon Steel		Alloy Steel		Special Steel		Special Steel		Cast Iron		Cast Al				
	St40 ~ 500 N/mm ²		CK45 500 ~ 710 N/mm ²		SCM440 710 ~ 900 N/mm ²		SKD61 28 HRC		SKD11 34 HRC		GG25 ~ 350 N/mm ²		AC4D				
Vc	63 ~ 80 m/min		40 ~ 63 m/min		32 ~ 50 m/min		20 ~ 28 m/min		16 ~ 22 m/min		63 ~ 100 m/min		80 ~ 160 m/min				
Ø	S (min ⁻¹)	F (mm/rev.)	S (min ⁻¹)	F (mm/rev.)	S (min ⁻¹)	F (mm/rev.)	S (min ⁻¹)	F (mm/rev.)	S (min ⁻¹)	F (mm/rev.)	S (min ⁻¹)	F (mm/rev.)	S (min ⁻¹)	F (mm/rev.)			
3	7.500	0,04~0,08	5.500	0,04~0,08	4.500	0,04~0,08	2.500	0,04~0,08	2.000	0,04~0,08	8.000	0,05~0,09	12.000	0,10~0,22			
4	5.700	0,05~0,10	4.100	0,05~0,10	3.300	0,05~0,10	1.900	0,05~0,10	1.500	0,05~0,10	6.500	0,07~0,12	9.500	0,12~0,25			
6	3.800	0,06~0,12	2.700	0,06~0,12	2.300	0,06~0,12	1.250	0,06~0,12	1.000	0,06~0,12	4.300	0,12~0,18	6.400	0,14~0,28			
8	2.800	0,08~0,15	2.000	0,08~0,15	1.700	0,08~0,15	950	0,08~0,15	750	0,08~0,15	3.200	0,13~0,20	4.800	0,18~0,32			
10	2.300	0,10~0,18	1.700	0,10~0,18	1.400	0,10~0,18	750	0,10~0,18	600	0,10~0,18	2.600	0,17~0,25	3.800	0,22~0,36			
12	1.900	0,12~0,21	1.400	0,12~0,21	1.200	0,12~0,21	650	0,12~0,21	500	0,12~0,21	2.200	0,21~0,30	3.200	0,25~0,40			
16	1.400	0,16~0,28	1.000	0,16~0,28	900	0,16~0,28	500	0,16~0,28	380	0,16~0,28	1.600	0,24~0,32	2.400	0,32~0,48			
20	1.150	0,20~0,34	820	0,20~0,34	700	0,20~0,34	400	0,20~0,34	300	0,20~0,34	1.300	0,26~0,40	1.900	0,40~0,60			

														HC-H-DRL / JOBBER			
	Cast Iron		Mild Steels Carbon Steels		Alloy Tool Steels Tool Steels		Hardened Steels Prehardened Steels				Titanium Alloys (Annealed)						
	< 180 HB		< 1000 N/mm²		< 1200 N/mm²		< 35 HRC				< 45 HRC		< 38 HRC				
Vc	90 m/min		90 m/min		85 m/min		55 ~ 65 m/min				45 ~ 55 m/min		40m/min				
Ø	F (mm/rev.)		F (mm/rev.)		F (mm/rev.)		F (mm/rev.)				F (mm/rev.)		F (mm/rev.)				
1	0,02		0,025		0,01		0,01				0,01		0,01				
2	0,04		0,05		0,02		0,02				0,02		0,02				
3	0,05		0,07		0,03		0,03				0,03		0,03				
4	0,07		0,08		0,04		0,04				0,04		0,04				
5	0,09		0,09		0,05		0,05				0,05		0,04				
6	0,10		0,10		0,05		0,06				0,06		0,05				
8	0,11		0,12		0,06		0,07				0,07		0,06				
10	0,12		0,15		0,10		0,10				0,10		0,06				
12	0,14		0,19		0,13		0,11				0,11		0,07				

														HC-H-DRL / JOBBER			
	Special Alloys Inconel		Aluminium		Graphite Composite		Epoxy Fibre		Acrylic Plastics		Composite Titanium Stack						
	< 42 HRC		< 130 HB														
Vc	15 ~ 20 m/min		150 ~ 180 m/min		50 ~ 70 m/min		50 ~ 70 m/min		40 ~ 60 m/min		5 m/min						
Ø	F (mm/rev.)		F (mm/rev.)		F (mm/rev.)		F (mm/rev.)		F (mm/rev.)		F (mm/rev.)						
1	0,007		0,02		n/a		n/a		n/a		n/a						
2	0,015		0,05		0,03		0,03		0,03		0,02						
3	0,02		0,07		0,05		0,05		0,05		0,02						
4	0,02		0,09		0,06		0,06		0,06		0,02						
5	0,03		0,11		0,07		0,07		0,07		0,05						
6	0,04		0,11		0,10		0,10		0,10		0,05						
8	0,04		0,14		0,12		0,12		0,12		0,07						
10	0,05		0,17		0,13		0,13		0,13		0,10						
12	0,05		0,20		0,14		0,14		0,14		0,10						

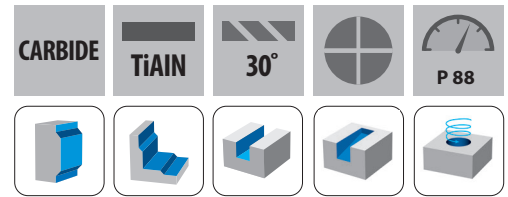
When drilling deep holes using HC-H-DRL, the recommended speeds and feeds should be reduced proportionally based on the hole depth. See table opposite for guidelines for reducing the speeds and feeds.

HC-H-DRL / JOBBER		
Drilling Depth	Spindle Speed Reduction	Feed Rate Reduction
3 x Dia	10%	10%
4 x Dia	20%	10%
5 x Dia	30%	20%
6 x Dia	35%	20%
8 x Dia	40%	20%

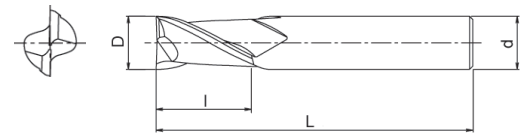
HYP-EDS / HYP-EDS-XCEED

GENERAL APPLICATIONS

- ▶ 2 flutes, regular, centre cutting, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright / TiALN Coated



Icon key page 2



Bright

TiALN coated

HYP-EDS	
EDP	Price
402-0394	£11.84
402-0591	£7.64
402-0787	£8.40
402-0984	£7.64
402-1181	£7.64
402-1378	£10.53
402-1575	£10.98
402-1772	£11.65
402-1968	£11.65
402-2362	£13.91
402-2756	£16.58
402-3150	£16.15
402-3543	£18.59
402-3937	£21.76
402-4331	£29.86
402-4724	£35.82
402-5512	£50.33
402-6299	£61.75
402-7087	£79.72
402-7874	£90.47
402-8661	£154.15
402-9843	£167.54

HYP-EDS-XCEED	
EDP	Price
402-039411	£20.42
402-059111	£16.98
402-078711	£17.75
402-098411	£16.98
402-118111	£16.98
402-137811	£19.88
402-157511	£20.34
402-177211	£21.00
402-196811	£21.00
402-236211	£23.25
402-275611	£27.94
402-315011	£27.54
402-354311	£31.60
402-393711	£33.15
402-433111	£43.34
402-472411	£49.29
402-551211	£63.79
402-629911	£81.78
402-708711	£99.76
402-787411	£117.16
402-866111	£187.52
402-984311	£200.90

Dimensions			
D	L	l	d
1	39	3	3
1,5	39	5	3
2	39	7	3
2,5	39	8	3
3	39	10	3
3,5	51	12	4
4	51	14	4
4,5	51	14	5
5	51	16	5
6	64	19	6
7	64	19	8
8	64	21	8
9	70	22	10
10	70	25	10
11	70	25	11
12	76	25	12
14	89	30	14
16	89	32	16
18	102	35	18
20	102	38	20
22	102	38	22
25	102	38	25

HYP-EDS (uncoated)

⊙ EXCELLENT ○ GOOD

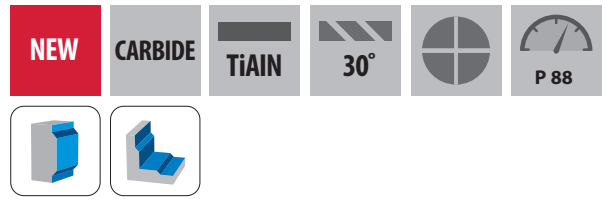
Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	○	○	○	○	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

HYP-EDS-XCEED (coated)

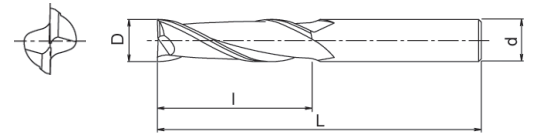
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

- ▶ 2 flutes, long, centre cutting, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright / TiALN Coated



Icon key page 2



Bright

TiALN coated

HYP-EDL	
EDP	Price
462-1181	£14.15
462-1575	£16.07
462-1968	£16.56
462-2362	£21.22
462-3150	£26.05
462-3937	£33.11
462-4724	£60.46
462-5512	£95.13
462-6299	£116.01
462-7087	£133.27
462-7874	£151.01
462-9843	£302.73

HYP-EDL-XCEED	
EDP	Price
462-118111	£20.95
462-157511	£22.87
462-196811	£23.36
462-236211	£28.02
462-315011	£35.05
462-393711	£42.11
462-472411	£71.11
462-551211	£114.73
462-629911	£135.61
462-708711	£154.37
462-787411	£172.11
462-984311	£324.73

Dimensions			
D	L	l	d
3	57	19	3
4	57	19	4
5	64	25	5
6	76	28	6
8	76	29	8
10	76	32	10
12	102	51	12
14	127	57	14
16	127	57	16
18	127	57	18
20	127	57	20
25	127	57	25

HYP-EDL (uncoated)

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	○	○	○	○	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

HYP-EDL-XCEED (coated)

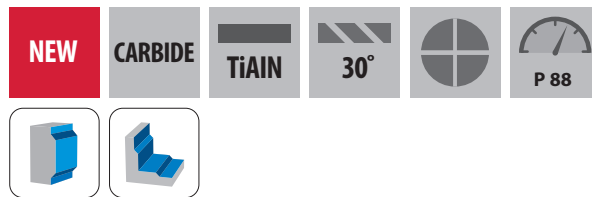
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

HYP-EDXL / HYP-EDXL-XCEED

GENERAL APPLICATIONS

- ▶ 2 flutes, extra long, centre cutting, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright / TiALN Coated



Icon key page 2

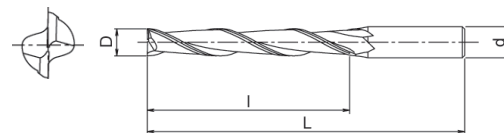


Bright

TiALN coated

HYP-EDXL	
EDP	Price
482-1181	£16.50
482-1575	£17.82
482-1968	£19.40
482-2362	£25.90
482-3150	£32.89
482-3937	£42.61
482-4724	£96.15
482-5512	£131.07
482-6299	£160.30
482-7087	£184.36
482-7874	£199.35
482-9843	£361.04

HYP-EDXL-XCEED	
EDP	Price
482-118111	£23.30
482-157511	£24.62
482-196811	£26.20
482-236211	£32.70
482-315011	£41.89
482-393711	£51.61
482-472411	£107.35
482-551211	£150.67
482-629911	£179.90
482-708711	£205.46
482-787411	£220.45
482-984311	£383.04



Dimensions			
D	L	l	d
3	76	25	3
4	76	28	4
5	76	32	5
6	102	38	6
8	102	42	8
10	102	45	10
12	153	76	12
14	153	76	14
16	153	76	16
18	153	76	18
20	153	76	20
25	153	76	25

HYP-EDXL (uncoated)

⊙ EXCELLENT ○ GOOD

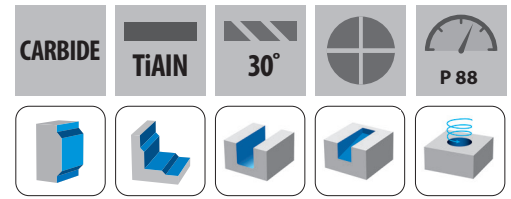
Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	○	○	○	○	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

HYP-EDXL-XCEED (coated)

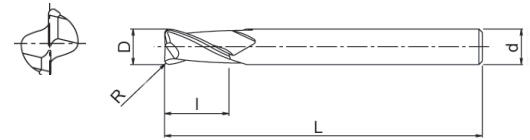
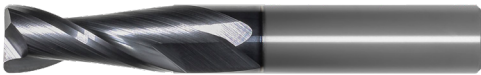
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

- ▶ 2 flutes, regular, corner radius, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiALN Coated



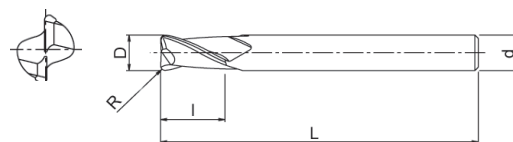
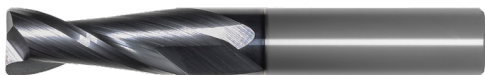
Icon key page 2



EDP	Dimensions					Price
	D	R	L	l	d	
402-1575R02	4	0,2	51	14	4	£20.60
402-1575R025	4	0,25	51	14	4	£20.60
402-1575R04	4	0,4	51	14	4	£20.60
402-1575R05	4	0,5	51	14	4	£20.60
402-1575R075	4	0,75	51	14	4	£20.60
402-1575R10	4	1,0	51	14	4	£22.60
402-1575R15	4	1,5	51	14	4	£22.60
402-1968R025	5	0,25	51	16	5	£22.33
402-1968R05	5	0,5	51	16	5	£22.33
402-1968R075	5	0,75	51	16	5	£22.33
402-1968R10	5	1,0	51	16	5	£22.33
402-1968R125	5	1,25	51	16	5	£22.33
402-1968R15	5	1,5	51	16	5	£22.33
402-1968R20	5	2,0	51	16	5	£22.33
402-2362R02	6	0,2	64	19	6	£27.88
402-2362R025	6	0,25	64	19	6	£27.88
402-2362R05	6	0,5	64	19	6	£27.88
402-2362R075	6	0,75	64	19	6	£27.88
402-2362R08	6	0,8	64	19	6	£27.88
402-2362R10	6	1,0	64	19	6	£27.88
402-2362R125	6	1,25	64	19	6	£27.88
402-2362R15	6	1,5	64	19	6	£27.88
402-2362R20	6	2,0	64	19	6	£27.88
402-3150R02	8	0,2	64	21	8	£33.01
402-3150R025	8	0,25	64	21	8	£33.01
402-3150R03	8	0,3	64	21	8	£33.01
402-3150R05	8	0,5	64	21	8	£33.01
402-3150R04	8	0,4	64	21	8	£33.01
402-3150R075	8	0,75	64	21	8	£33.01
402-3150R08	8	0,8	64	21	8	£33.01
402-3150R10	8	1,0	64	21	8	£33.01
402-3150R125	8	1,25	64	21	8	£33.01
402-3150R15	8	1,5	64	21	8	£33.01
402-3150R20	8	2,0	64	21	8	£33.01

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
				○				○				

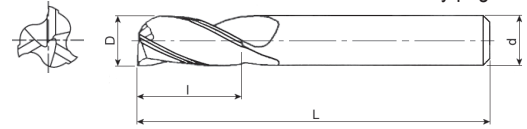
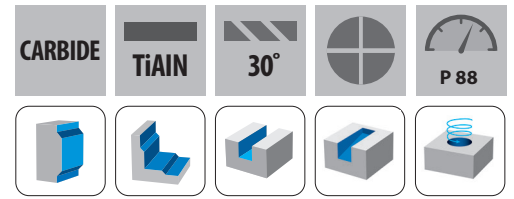


EDP	Dimensions					Price
	D	R	L	l	d	
402-3150R25	8	2,5	64	21	8	£33.01
402-3150R30	8	3,0	64	21	8	£33.01
402-3937R02	10	0,2	70	25	10	£41.73
402-3937R025	10	0,25	70	25	10	£41.73
402-3937R04	10	0,4	70	25	10	£41.73
402-3937R05	10	0,5	70	25	10	£41.73
402-3937R08	10	0,8	70	25	10	£41.73
402-3937R10	10	1,0	70	25	10	£41.73
402-3937R125	10	1,25	70	25	10	£41.73
402-3937R15	10	1,5	70	25	10	£41.73
402-3937R20	10	2,0	70	25	10	£41.73
402-3937R25	10	2,5	70	25	10	£41.73
402-3937R30	10	3,0	70	25	10	£41.73
402-3937R32	10	3,2	70	25	10	£41.73
402-3937R40	10	4,0	70	25	10	£41.73
402-4724R02	12	0,2	76	25	12	£64.86
402-4724R025	12	0,25	76	25	12	£64.86
402-4724R03	12	0,3	76	25	12	£64.86
402-4724R05	12	0,5	76	25	12	£64.86
402-4724R075	12	0,75	76	25	12	£64.86
402-4724R08	12	0,8	76	25	12	£64.86
402-4724R10	12	1,0	76	25	12	£64.86
402-4724R15	12	1,5	76	25	12	£64.86
402-4724R20	12	2,0	76	25	12	£64.86
402-4724R25	12	2,5	76	25	12	£64.86
402-4724R30	12	3,0	76	25	12	£64.86
402-4724R32	12	3,2	76	25	12	£64.86
402-4724R40	12	4,0	76	25	12	£64.86
402-6299R05	16	0,5	89	32	16	£105.22
402-6299R10	16	1,0	89	32	16	£105.22
402-6299R15	16	1,5	89	32	16	£105.22
402-6299R20	16	2,0	89	32	16	£105.22
402-6299R25	16	2,5	89	32	16	£105.22
402-6299R30	16	3,0	89	32	16	£105.22
402-6299R40	16	4,0	89	32	16	£105.22
402-6299R50	16	5,0	89	32	16	£105.22
402-7874R05	20	0,5	102	38	20	£133.54
402-7874R10	20	1,0	102	38	20	£133.54
402-7874R20	20	2,0	102	38	20	£133.54
402-7874R30	20	3,0	102	38	20	£133.54
402-7874R50	20	5,0	102	38	20	£133.54

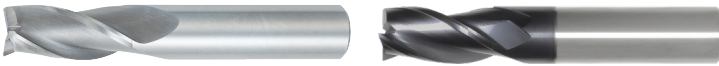
⊗ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊗	⊗	⊗	⊗	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
				○				○				

- ▶ 3 flutes, regular, centre cutting, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright / TiALN Coated



Icon key page 2



Bright

TiALN coated

HYP-ETS	
EDP	Price
403-0394	£11.84
403-0591	£7.64
403-0787	£8.40
403-0984	£7.64
403-1181	£7.64
403-1378	£10.53
403-1575	£10.98
403-1772	£11.65
403-1968	£11.65
403-2362	£13.91
403-2756	£16.58
403-3150	£16.15
403-3543	£18.59
403-3937	£21.76
403-4331	£29.86
403-4724	£35.82
403-5512	£50.33
403-6299	£61.75
403-7087	£79.72
403-7874	£90.47
403-8661	£154.15
403-9843	£167.54

HYP-ETS-XCEED	
EDP	Price
403-039411	£20.42
403-059111	£16.98
403-078711	£17.75
403-098411	£16.98
403-118111	£16.98
403-137811	£19.87
403-157511	£20.34
403-177211	£21.01
403-196811	£21.00
403-236211	£23.25
403-275611	£27.94
403-315011	£27.54
403-354311	£31.60
403-393711	£33.15
403-433111	£43.34
403-472411	£49.29
403-551211	£63.79
403-629911	£81.78
403-708711	£99.76
403-787411	£117.16
403-866111	£187.52
403-984311	£200.90

Dimensions			
D	L	l	d
1	39	3	3
1,5	39	5	3
2	39	7	3
2,5	39	8	3
3	39	10	3
3,5	51	12	4
4	51	14	4
4,5	51	14	5
5	51	16	5
6	64	19	6
7	64	19	8
8	64	21	8
9	70	22	10
10	70	25	10
11	70	25	11
12	76	25	12
14	89	30	14
16	89	32	16
18	102	35	18
20	102	38	20
22	102	38	22
25	102	38	25

HYP-ETS (uncoated)

⊙ EXCELLENT ○ GOOD

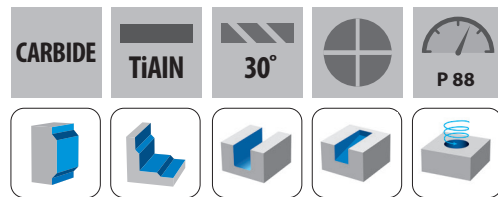
Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	○	○	○	○	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

HYP-ETS-XCEED (coated)

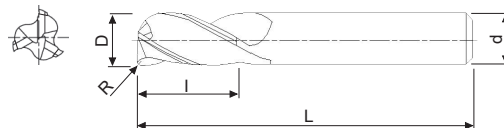
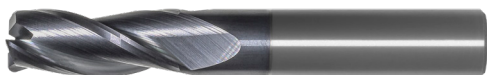
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

- ▶ 3 flutes, regular, corner radius, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiALN Coated



Icon key page 2



EDP	Dimensions					Price
	D	R	L	l	d	
403-1575R02	4	0,2	51	14	4	£20.60
403-1575R025	4	0,25	51	14	4	£20.60
403-1575R04	4	0,4	51	14	4	£20.60
403-1575R05	4	0,5	51	14	4	£20.60
403-1575R075	4	0,75	51	14	4	£20.60
403-1575R10	4	1,0	51	14	4	£20.60
403-1575R15	4	1,5	51	14	4	£20.60
403-1968R025	5	0,25	51	16	5	£22.33
403-1968R05	5	0,5	51	16	5	£22.33
403-1968R075	5	0,75	51	16	5	£22.33
403-1968R10	5	1,0	51	16	5	£22.33
403-1968R125	5	1,25	51	16	5	£22.33
403-1968R15	5	1,5	51	16	5	£22.33
403-1968R20	5	2,0	51	16	5	£22.33
403-2362R02	6	0,2	64	19	6	£27.88
403-2362R025	6	0,25	64	19	6	£27.88
403-2362R05	6	0,5	64	19	6	£27.88
403-2362R075	6	0,75	64	19	6	£27.88
403-2362R08	6	0,8	64	19	6	£27.88
403-2362R10	6	1,0	64	19	6	£27.88
403-2362R125	6	1,25	64	19	6	£27.88
403-2362R15	6	1,5	64	19	6	£27.88
403-2362R20	6	2,0	64	19	6	£27.88
403-3150R02	8	0,2	64	21	8	£33.01
403-3150R025	8	0,25	64	21	8	£33.01
403-3150R03	8	0,3	64	21	8	£33.01
403-3150R05	8	0,5	64	21	8	£33.01
403-3150R075	8	0,75	64	21	8	£33.01
403-3150R08	8	0,8	64	21	8	£33.01
403-3150R10	8	1,0	64	21	8	£33.01
403-3150R125	8	1,25	64	21	8	£33.01
403-3150R15	8	1,5	64	21	8	£33.01
403-3150R20	8	2,0	64	21	8	£33.01

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
				○				○				

EDP	Dimensions					Price
	D	R	L	l	d	
403-3150R25	8	2,5	64	21	8	£33.01
403-3150R30	8	3,0	64	21	8	£33.01
403-3937R02	10	0,2	70	25	10	£41.73
403-3937R025	10	0,25	70	25	10	£41.73
403-3937R04	10	0,4	70	25	10	£41.73
403-3937R05	10	0,5	70	25	10	£41.73
403-3937R08	10	0,8	70	25	10	£41.73
403-3937R10	10	1,0	70	25	10	£41.73
403-3937R125	10	1,25	70	25	10	£41.73
403-3937R15	10	1,5	70	25	10	£41.73
403-3937R20	10	2,0	70	25	10	£41.73
403-3937R25	10	2,5	70	25	10	£41.73
403-3937R30	10	3,0	70	25	10	£41.73
403-3937R32	10	3,2	70	25	10	£41.73
403-3937R40	10	4,0	70	25	10	£41.73
403-4724R02	12	0,2	76	25	12	£64.86
403-4724R025	12	0,25	76	25	12	£64.86
403-4724R03	12	0,3	76	25	12	£64.86
403-4724R05	12	0,5	76	25	12	£64.86
403-4724R075	12	0,75	76	25	12	£64.86
403-4724R08	12	0,8	76	25	12	£64.86
403-4724R10	12	1,0	76	25	12	£64.86
403-4724R15	12	1,5	76	25	12	£64.86
403-4724R20	12	2,0	76	25	12	£64.86
403-4724R25	12	2,5	76	25	12	£64.86
403-4724R30	12	3,0	76	25	12	£64.86
403-4724R32	12	3,2	76	25	12	£64.86
403-4724R40	12	4,0	76	25	12	£64.86
403-6299R05	16	0,5	89	32	16	£105.22
403-6299R10	16	1,0	89	32	16	£105.22
403-6299R15	16	1,5	89	32	16	£105.22
403-6299R20	16	2,0	89	32	16	£105.22
403-6299R25	16	2,5	89	32	16	£105.22
403-6299R30	16	3,0	89	32	16	£105.22
403-6299R40	16	4,0	89	32	16	£105.22
403-6299R50	16	5,0	89	32	16	£105.22
403-7874R05	20	0,5	102	38	20	£133.54
403-7874R10	20	1,0	102	38	20	£133.54
403-7874R20	20	2,0	102	38	20	£133.54
403-7874R30	20	3,0	102	38	20	£133.54
403-7874R50	20	5,0	102	38	20	£133.54

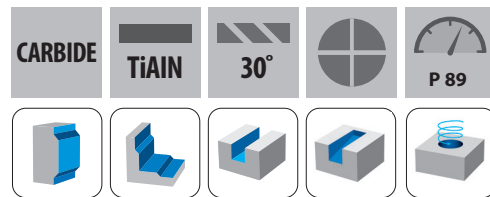
⊗ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊗	⊗	⊗	⊗	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
				○				○				

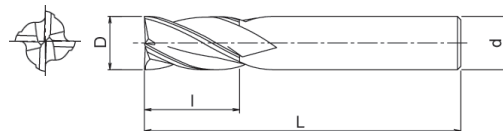
HYP-EMS / HYP-EMS-XCEED

GENERAL APPLICATIONS

- ▶ 4 flutes, regular, centre cutting, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright / TiALN Coated



Icon key page 2



HYP-EMS	
EDP	Price
404-0394	£11.84
404-0591	£7.64
404-0787	£8.40
404-0984	£7.64
404-1181	£7.64
404-1378	£10.53
404-1575	£10.98
404-1772	£11.65
404-1968	£11.65
404-2362	£13.91
404-2756	£16.58
404-3150	£16.15
404-3543	£18.59
404-3937	£21.76
404-4331	£29.86
404-4724	£35.82
404-5512	£50.33
404-6299	£61.75
404-7087	£79.72
404-7874	£90.47
404-8661	£154.15
404-9843	£167.54

HYP-EMS-XCEED	
EDP	Price
404-039411	£20.42
404-059111	£16.98
404-078711	£17.75
404-098411	£16.98
404-118111	£16.98
404-137811	£19.88
404-157511	£20.34
404-177211	£21.00
404-196811	£21.00
404-236211	£23.25
404-275611	£27.94
404-315011	£27.54
404-354311	£31.60
404-393711	£33.15
404-433111	£43.34
404-472411	£49.29
404-551211	£63.79
404-629911	£81.78
404-708711	£99.76
404-787411	£117.16
404-866111	£187.52
404-984311	£200.90

Dimensions			
D	L	l	d
1	39	3	3
1,5	39	5	3
2	39	7	3
2,5	39	8	3
3	39	10	3
3,5	51	12	4
4	51	14	4
4,5	51	14	5
5	51	16	5
6	64	19	6
7	64	19	8
8	64	21	8
9	70	22	10
10	70	25	10
11	70	25	11
12	76	25	12
14	89	30	14
16	89	32	16
18	102	35	18
20	102	38	20
22	102	38	22
25	102	38	25

HYP-EMS (uncoated)

⊙ EXCELLENT ○ GOOD

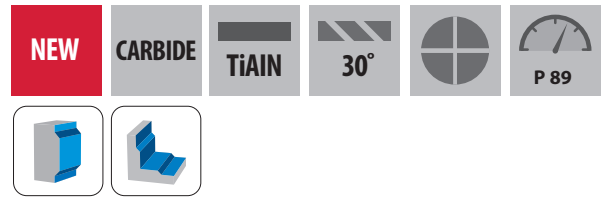
Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	○	○	○	○	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

HYP-EMS-XCEED (coated)

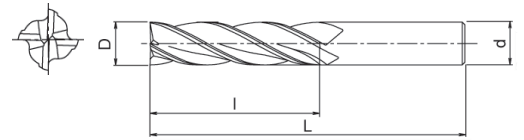
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

- ▶ 4 flutes, long, centre cutting, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright / TiALN Coated



Icon key page 2



Bright

TiALN coated

HYP-EML	
EDP	Price
464-1181	£14.21
464-1575	£16.07
464-1968	£16.56
464-2362	£21.22
464-3150	£27.13
464-3937	£33.11
464-4724	£60.46
464-5512	£95.13
464-6299	£116.01
464-7087	£133.41
464-7874	£151.01
464-9843	£302.73

HYP-EML-XCEED	
EDP	Price
464-118111	£21.01
464-157511	£22.87
464-196811	£23.36
464-236211	£28.02
464-315011	£36.13
464-393711	£42.11
464-472411	£71.11
464-551211	£114.73
464-629911	£135.61
464-708711	£154.51
464-787411	£172.11
464-984311	£324.73

Dimensions			
D	L	l	d
3	57	19	3
4	57	19	4
5	64	25	5
6	76	28	6
8	76	29	8
10	76	32	10
12	102	51	12
14	127	57	14
16	127	57	16
18	127	57	18
20	127	57	20
25	127	57	25

HYP-EML (uncoated)

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	○	○	○	○	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

HYP-EML-XCEED (coated)

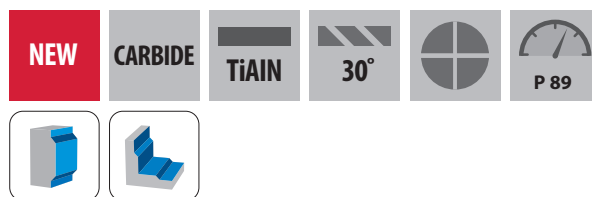
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

HYP-EMXL / HYP-EMXL-XCEED

GENERAL APPLICATIONS

- ▶ 4 flutes, extra long, centre cutting, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright / TiALN Coated



Icon key page 2

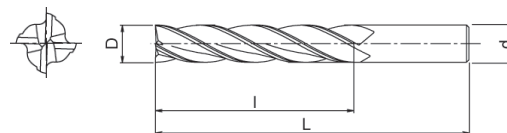


Bright

TiALN coated

HYP-EMXL	
EDP	Price
484-1181	£16.50
484-1575	£17.82
484-1968	£19.40
484-2362	£25.90
484-3150	£32.89
484-3937	£42.61
484-4724	£96.15
484-5512	£131.07
484-6299	£160.30
484-7087	£184.36
484-7874	£199.35
484-9843	£361.04

HYP-EMXL-XCEED	
EDP	Price
484-118111	£23.30
484-157511	£24.62
484-196811	£26.20
484-236211	£32.70
484-315011	£41.89
484-393711	£51.61
484-472411	£107.35
484-551211	£150.67
484-629911	£179.90
484-708711	£205.46
484-787411	£220.45
484-984311	£383.04



Dimensions			
D	L	l	d
3	76	25	3
4	76	28	4
5	76	32	5
6	102	38	6
8	102	42	8
10	102	45	10
12	153	76	12
14	153	76	14
16	153	76	16
18	153	76	18
20	153	76	20
25	153	76	25

HYP-EMXL (uncoated)

⊙ EXCELLENT ○ GOOD

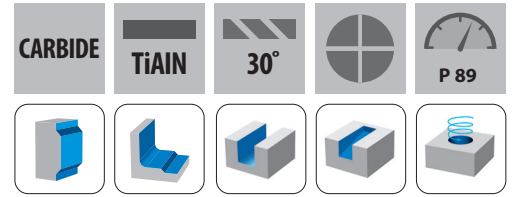
Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	○	○	○	○	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

HYP-EMXL-XCEED (coated)

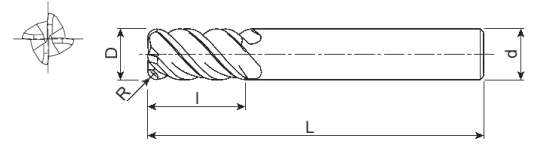
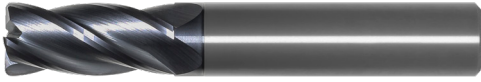
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

- ▶ 4 flutes, regular, corner radius, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiALN Coated



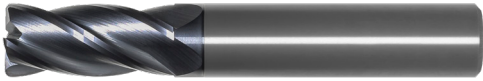
Icon key page 2



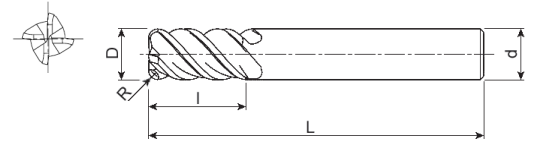
EDP	Dimensions					Price
	D	R	L	l	d	
404-1575R02	4	0,2	51	14	4	£20.59
404-1575R025	4	0,25	51	14	4	£20.59
404-1575R04	4	0,4	51	14	4	£20.59
404-1575R05	4	0,5	51	14	4	£20.59
404-1575R075	4	0,75	51	14	4	£20.59
404-1575R10	4	1,0	51	14	4	£20.59
404-1575R15	4	1,5	51	14	4	£20.59
404-1968R025	5	0,25	51	16	5	£22.33
404-1968R05	5	0,5	51	16	5	£22.33
404-1968R075	5	0,75	51	16	5	£22.33
404-1968R10	5	1,0	51	16	5	£22.33
404-1968R125	5	1,25	51	16	5	£22.33
404-1968R15	5	1,5	51	16	5	£22.33
404-1968R20	5	2,0	51	16	5	£22.33
404-2362R02	6	0,2	64	19	6	£27.88
404-2362R025	6	0,25	64	19	6	£27.88
404-2362R05	6	0,5	64	19	6	£27.88
404-2362R075	6	0,75	64	19	6	£27.88
404-2362R08	6	0,8	64	19	6	£27.88
404-2362R10	6	1,0	64	19	6	£27.88
404-2362R125	6	1,25	64	19	6	£27.88
404-2362R15	6	1,5	64	19	6	£27.88
404-2362R20	6	2,0	64	19	6	£27.88
404-3150R02	8	0,2	64	21	8	£33.02
404-3150R025	8	0,25	64	21	8	£33.02
404-3150R03	8	0,3	64	21	8	£33.02
404-3150R05	8	0,5	64	21	8	£33.02
404-3150R075	8	0,75	64	21	8	£33.02
404-3150R08	8	0,8	64	21	8	£33.02
404-3150R10	8	1,0	64	21	8	£33.02
404-3150R125	8	1,25	64	21	8	£33.02
404-3150R15	8	1,5	64	21	8	£33.02
404-3150R20	8	2,0	64	21	8	£33.02

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
				○				○				



NEW SIZES

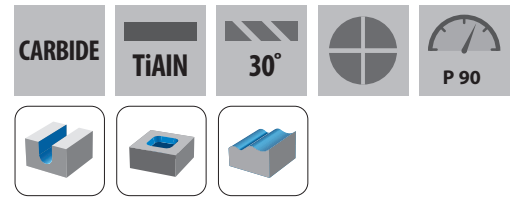


EDP	Dimensions					Price
	D	R	L	l	d	
404-3150R25	8	2,5	64	21	8	£33.02
404-3150R30	8	3,0	64	21	8	£33.02
404-3937R02	10	0,2	70	25	10	£41.73
404-3937R025	10	0,25	70	25	10	£41.73
404-3937R04	10	0,4	70	25	10	£41.73
404-3937R05	10	0,5	70	25	10	£41.73
404-3937R08	10	0,8	70	25	10	£41.73
404-3937R10	10	1,0	70	25	10	£41.73
404-3937R125	10	1,25	70	25	10	£41.73
404-3937R15	10	1,5	70	25	10	£41.73
404-3937R20	10	2,0	70	25	10	£41.73
404-3937R25	10	2,5	70	25	10	£41.73
404-3937R30	10	3,0	70	25	10	£41.73
404-3937R32	10	3,2	70	25	10	£41.73
404-3937R40	10	4,0	70	25	10	£41.73
404-4724R02	12	0,2	76	25	12	£64.86
404-4724R025	12	0,25	76	25	12	£64.86
404-4724R03	12	0,3	76	25	12	£64.86
404-4724R05	12	0,5	76	25	12	£64.86
404-4724R075	12	0,75	76	25	12	£64.86
404-4724R08	12	0,8	76	25	12	£64.86
404-4724R10	12	1,0	76	25	12	£64.86
404-4724R15	12	1,5	76	25	12	£64.86
404-4724R20	12	2,0	76	25	12	£64.86
404-4724R25	12	2,5	76	25	12	£64.86
404-4724R30	12	3,0	76	25	12	£64.86
404-4724R32	12	3,2	76	25	12	£64.86
404-4724R40	12	4,0	76	25	12	£64.86
404-6299R05	16	0,5	89	32	16	£105.22
404-6299R10	16	1,0	89	32	16	£105.22
404-6299R15	16	1,5	89	32	16	£105.22
404-6299R20	16	2,0	89	32	16	£105.22
404-6299R25	16	2,5	89	32	16	£105.22
404-6299R30	16	3,0	89	32	16	£105.22
404-6299R40	16	4,0	89	32	16	£105.22
404-6299R50	16	5,0	89	32	16	£105.22
404-7874R05	20	0,5	102	38	20	£133.54
404-7874R10	20	1,0	102	38	20	£133.54
404-7874R20	20	2,0	102	38	20	£133.54
404-7874R30	20	3,0	102	38	20	£133.54
404-7874R50	20	5,0	102	38	20	£133.54

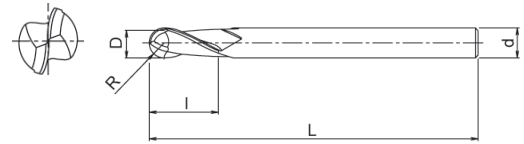
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
				○				○				

- ▶ 2 flutes, regular, ball end, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright / TiALN Coated



Icon key page 2



Bright

TiALN coated

HYP-EBD	
EDP	Price
402-0394-BN	£13.61
402-0591-BN	£8.79
402-0787-BN	£9.64
402-0984-BN	£8.79
402-1181-BN	£8.79
402-1378-BN	£12.11
402-1575-BN	£12.63
402-1772-BN	£13.39
402-1968-BN	£13.39
402-2362-BN	£15.99
402-2756-BN	£19.06
402-3150-BN	£18.59
402-3543-BN	£21.35
402-3937-BN	£25.04
402-4331-BN	£34.33
402-4724-BN	£41.20
402-5512-BN	£57.90
402-6299-BN	£71.01
402-7087-BN	£91.69
402-7874-BN	£104.02
402-8661-BN	£177.29
402-9843-BN	£192.68

HYP-EBD-XCEED	
EDP	Price
402-0394-BN11	£22.96
402-0591-BN11	£18.13
402-0787-BN11	£18.99
402-0984-BN11	£18.13
402-1181-BN11	£18.13
402-1378-BN11	£21.46
402-1575-BN11	£21.98
402-1772-BN11	£22.73
402-1968-BN11	£22.73
402-2362-BN11	£25.35
402-2756-BN11	£30.42
402-3150-BN11	£29.96
402-3543-BN11	£32.71
402-3937-BN11	£36.40
402-4331-BN11	£47.79
402-4724-BN11	£54.67
402-5512-BN11	£71.36
402-6299-BN11	£91.03
402-7087-BN11	£111.70
402-7874-BN11	£130.72
402-8661-BN11	£210.65
402-9843-BN11	£226.04

Dimensions			
D	L	l	d
1	39	3	3
1,5	39	5	3
2	39	7	3
2,5	39	8	3
3	39	10	3
3,5	51	12	4
4	51	14	4
4,5	51	14	5
5	51	16	5
6	64	19	6
7	64	19	8
8	64	21	8
9	70	22	10
10	70	25	10
11	70	25	11
12	76	25	12
14	89	30	14
16	89	32	16
18	102	35	18
20	102	38	20
22	102	38	22
25	102	38	25

HYP-EBD (uncoated)

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	○	○	○	○	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

HYP-EBD-XCEED (coated)

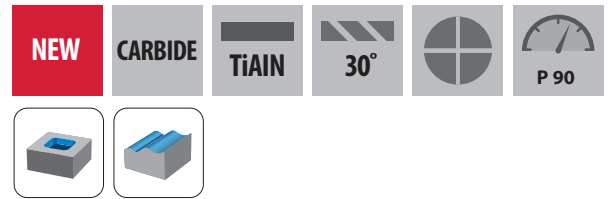
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

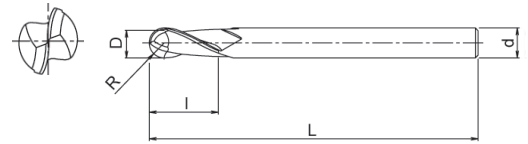
HYP-EBDL / HYP-EBDL-XCEED

GENERAL APPLICATIONS

- ▶ 2 flutes, long, ball end, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright / TiALN Coated



Icon key page 2



Bright

HYP-EBDL	
EDP	Price
462-1181-BN	£16.28
462-1575-BN	£18.47
462-1968-BN	£19.03
462-2362-BN	£24.41
462-3150-BN	£29.98
462-3937-BN	£38.08
462-4724-BN	£69.52
462-5512-BN	£109.40
462-6299-BN	£133.41
462-7087-BN	£153.43
462-7874-BN	£196.05
462-9843-BN	£348.14

TiALN coated

HYP-EBDL-XCEED	
EDP	Price
462-1181-BN11	£23.08
462-1575-BN11	£25.27
462-1968-BN11	£25.83
462-2362-BN11	£31.21
462-3150-BN11	£38.98
462-3937-BN11	£47.08
462-4724-BN11	£80.17
462-5512-BN11	£129.00
462-6299-BN11	£153.01
462-7087-BN11	£174.53
462-7874-BN11	£217.15
462-9843-BN11	£370.14

Dimensions			
D	L	l	d
3	57	19	3
4	57	19	4
5	64	25	5
6	76	28	6
8	76	29	8
10	76	32	10
12	102	51	12
14	127	57	14
16	127	57	16
18	127	57	18
20	127	57	20
25	127	57	25

HYP-EBDL (uncoated)

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	○	○	○	○	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

HYP-EBDL-XCEED (coated)

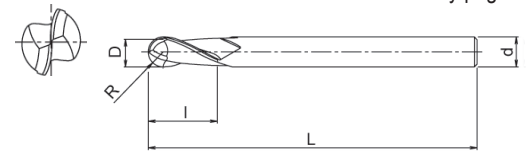
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

- ▶ 2 flutes, extra long, ball end, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright / TiALN Coated



Icon key page 2



Bright

TiALN coated

HYP-EBDXL	
EDP	Price
482-1181-BN	£16.84
482-1575-BN	£18.21
482-1968-BN	£19.80
482-2362-BN	£26.45
482-3150-BN	£33.60
482-3937-BN	£43.52
482-4724-BN	£98.15
482-5512-BN	£133.87
482-6299-BN	£163.74
482-7087-BN	£203.62
482-7874-BN	£229.15
482-9843-BN	£368.76

HYP-EBDXL-XCEED	
EDP	Price
482-1181-BN11	£23.64
482-1575-BN11	£25.01
482-1968-BN11	£26.60
482-2362-BN11	£33.25
482-3150-BN11	£42.60
482-3937-BN11	£52.52
482-4724-BN11	£109.35
482-5512-BN11	£153.47
482-6299-BN11	£183.34
482-7087-BN11	£224.72
482-7874-BN11	£250.25
482-9843-BN11	£390.76

Dimensions			
D	L	l	d
3	76	25	3
4	76	28	4
5	76	32	5
6	102	38	6
8	102	42	8
10	102	45	10
12	153	76	12
14	153	76	14
16	153	76	16
18	153	76	18
20	153	76	20
25	153	76	25

HYP-EBDXL (uncoated)

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	○	○	○	○	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

HYP-EBDXL-XCEED (coated)

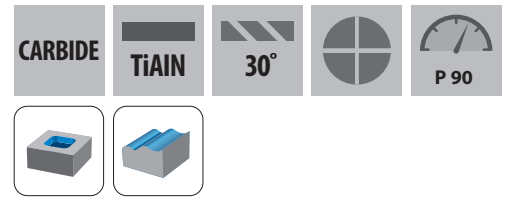
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

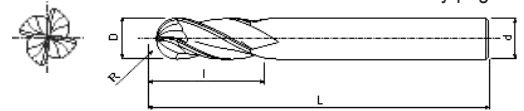
HYP-EBM / HYP-EBM-XCEED

GENERAL APPLICATIONS

- ▶ 4 flutes, regular, ball end, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright / TiALN Coated



Icon key page 2



Bright

TiALN coated

HYP-EBM	
EDP	Price
404-0394-BN	£13.61
404-0591-BN	£8.79
404-0787-BN	£9.64
404-0984-BN	£7.64
404-1181-BN	£8.79
404-1378-BN	£12.11
404-1575-BN	£12.63
404-1772-BN	£13.39
404-1968-BN	£13.39
404-2362-BN	£15.99
404-2756-BN	£19.06
404-3150-BN	£18.59
404-3543-BN	£21.35
404-3937-BN	£25.04
404-4331-BN	£34.34
404-4724-BN	£41.20
404-5512-BN	£57.90
404-6299-BN	£71.01
404-7087-BN	£91.69
404-7874-BN	£104.02
404-8661-BN	£177.29
404-9843-BN	£192.68

HYP-EBM-XCEED	
EDP	Price
404-0394-BN11	£22.96
404-0591-BN11	£18.13
404-0787-BN11	£18.99
404-0984-BN11	£18.13
404-1181-BN11	£18.13
404-1378-BN11	£21.46
404-1575-BN11	£21.98
404-1772-BN11	£22.73
404-1968-BN11	£22.73
404-2362-BN11	£25.35
404-2756-BN11	£30.42
404-3150-BN11	£29.96
404-3543-BN11	£32.71
404-3937-BN11	£36.40
404-3331-BN11	£47.79
404-4724-BN11	£54.67
404-5512-BN11	£71.36
404-6299-BN11	£91.03
404-7087-BN11	£111.70
404-7874-BN11	£130.72
404-8661-BN11	£210.65
404-9843-BN11	£226.04

Dimensions			
D	L	l	d
1	39	3	3
1,5	39	5	3
2	39	7	3
2,5	39	8	3
3	39	10	3
3,5	51	12	4
4	51	14	4
4,5	51	14	5
5	51	16	5
6	64	19	6
7	64	19	8
8	64	21	8
9	70	22	10
10	70	25	10
11	70	25	11
12	76	25	12
14	89	30	14
16	89	32	16
18	102	35	18
20	102	38	20
22	102	38	22
25	102	38	25

HYP-EBM (uncoated)

⊙ EXCELLENT ○ GOOD

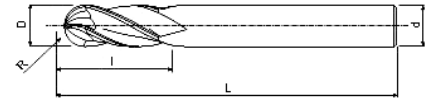
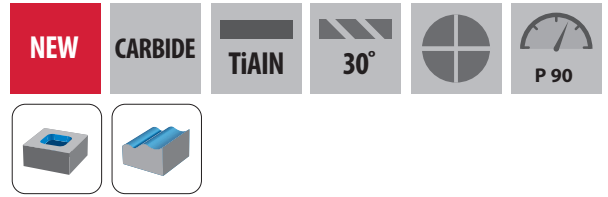
Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	○	○	○	○	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

HYP-EBM-XCEED (coated)

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

- ▶ 4 flutes, long, ball end, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright / TiALN Coated



Icon key page 2

Bright

TiALN coated

HYP-EBML	
EDP	Price
464-1181-BN	£16.28
464-1575-BN	£18.47
464-1968-BN	£19.03
464-2362-BN	£24.41
464-3150-BN	£29.98
464-3937-BN	£38.08
464-4724-BN	£69.52
464-5512-BN	£109.40
464-6299-BN	£133.41
464-7087-BN	£153.43
464-7874-BN	£173.67
464-9843-BN	£348.14

HYP-EBML-XCEED	
EDP	Price
464-1181-BN11	£23.08
464-1575-BN11	£25.27
464-1968-BN11	£25.83
464-2362-BN11	£31.21
464-3150-BN11	£38.98
464-3937-BN11	£47.08
464-4724-BN11	£80.17
464-5512-BN11	£129.00
464-6299-BN11	£153.01
464-7087-BN11	£174.53
464-7874-BN11	£194.77
464-9843-BN11	£370.14

Dimensions			
D	L	l	d
3	57	19	3
4	57	19	4
5	64	25	5
6	76	28	6
8	76	29	8
10	76	32	10
12	102	51	12
14	127	57	14
16	127	57	16
18	127	57	18
20	127	57	20
25	127	57	25

HYP-EBML (uncoated)

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	○	○	○	○	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

HYP-EBML-XCEED (coated)

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

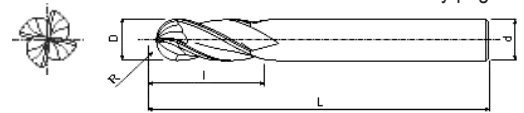
HYP-EBMXL / HYP-EBMXL-XCEED

GENERAL APPLICATIONS

- ▶ 4 flutes, extra long, ball end, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright / TiALN Coated



Icon key page 2



Bright

TiALN coated

HYP-EBMXL	
EDP	Price
484-1181-BN	£17.61
484-1575-BN	£19.03
484-1968-BN	£20.70
484-2362-BN	£27.65
484-3150-BN	£35.13
484-3937-BN	£45.50
484-4724-BN	£102.61
484-5512-BN	£139.96
484-6299-BN	£171.19
484-7087-BN	£196.87
484-7874-BN	£212.88
484-9843-BN	£385.54

HYP-EBMXL-XCEED	
EDP	Price
484-1181-BN11	£24.41
484-1575-BN11	£25.83
484-1968-BN11	£27.50
484-2362-BN11	£34.45
484-3150-BN11	£44.13
484-3937-BN11	£54.50
484-4724-BN11	£113.81
484-5512-BN11	£159.56
484-6299-BN11	£190.79
484-7087-BN11	£217.97
484-7874-BN11	£233.98
484-9843-BN11	£407.54

Dimensions			
D	L	l	d
3	76	25	3
4	76	28	4
5	76	32	5
6	102	38	6
8	102	42	8
10	102	45	10
12	153	76	12
14	153	76	14
16	153	76	16
18	153	76	18
20	153	76	20
25	153	76	25

HYP-EBMXL (uncoated)

⊙ EXCELLENT ○ GOOD

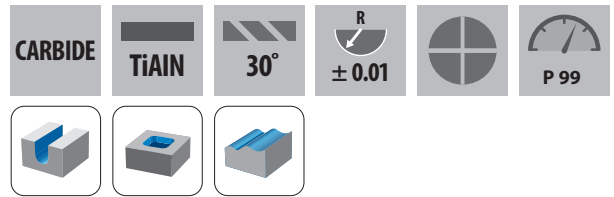
Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	○	○	○	○	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

HYP-EBMXL-XCEED (coated)

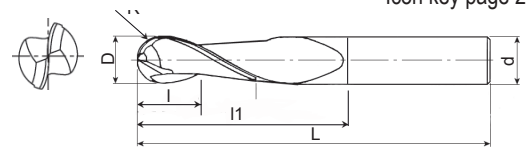
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

- ▶ 2 flutes, regular, ball end, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiALN Coated



Icon key page 2



EDP	Dimensions					Price
	D	L	l	l1	d	
48350030	3	57	4	9	6	£43.42
48350040	4	57	5	12	6	£43.42
48350050	5	57	6	15	6	£43.42
48350060	6	57	7	18	6	£53.42
48350080	8	63	9	20	8	£57.11
48350100	10	72	11	25	10	£83.26
48351200	12	83	13	25	12	£109.79



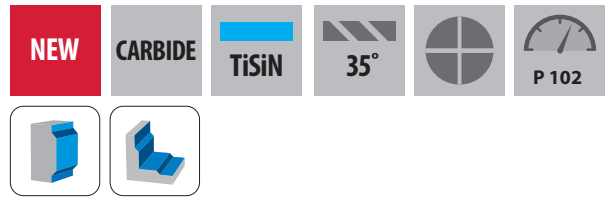
Technical

	<p>HYP-SB-EBD Long cutting edge</p> <p>Less torque Less heat build up Better surface finish Longer tool life</p>	<p>Standard Geometry Short cutting edge</p> <p>Normal torque Normal heat build up Average surface finish Standard tool life</p>	

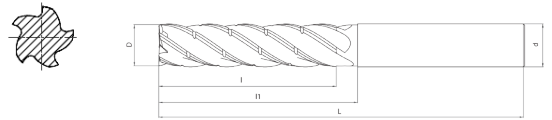
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
⊙	⊙	⊙	⊙	⊙	⊙	⊙		○	○		⊙	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
○				○								

- ▶ 5 flute, long, with chipbreaker, for side milling upto 4 x D
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiSiN Coated



Icon key page 2



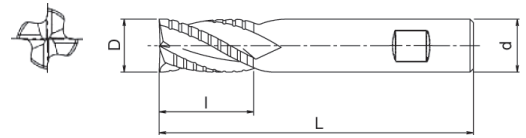
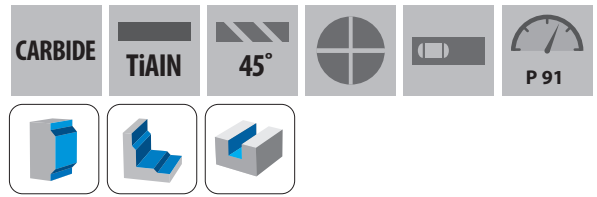
EDP	Dimensions							Price
	D	L	l	l1	d1	d	No Flutes	
485-2362-N11	6	70	26	29	5.5	6	5	£39.30
485-3150-N11	8	90	34	38	7.5	8	5	£55.02
485-3937-N11	10	95	42	47	9.5	10	5	£78.50
485-4724-N11	12	103	50	56	11.5	12	5	£102.50
485-5512-N11	14	103	58	65	13.5	14	5	£138.40
485-6299-N11	16	125	66	74	15.5	16	5	£175.70
485-7087-N11	18	125	74	83	17.5	18	5	£210.85
485-7874-N11	20	140	82	92	19.5	20	5	£242.45

AVAILABLE AUTUMN 2020

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
⊙	⊙	⊙	⊙	⊙	⊙			⊙	⊙		○	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
								⊙	⊙			

- ▶ 4 flutes, regular, roughing, for general applications
- ▶ Shank : FS (with flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiALN Coated



Icon key page 2

EDP	Dimensions				Price
	D	L	l	d	
48624060	6	64	19	6	£28.60
48624080	8	64	21	8	£44.83
48624100	10	70	22	10	£58.49
48624120	12	76	25	12	£74.42
48625160	16	89	32	16	£124.99
48626200	20	102	38	20	£200.60
48626250	25	102	38	25	£476.59

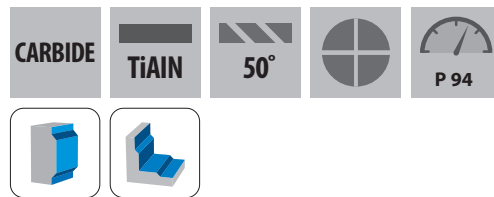
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
⊙	⊙	⊙	⊙	⊙	○			○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

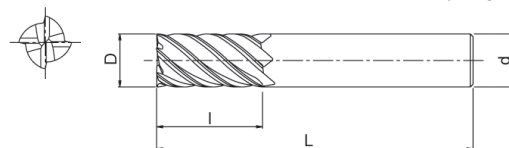
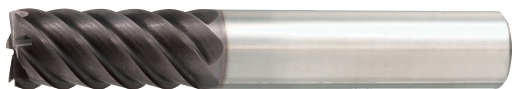
HYP-ROCKET-MILL

GENERAL APPLICATIONS

- ▶ 4,6 & 8 flute, regular, finishing, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiALN Coated



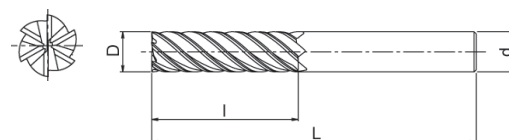
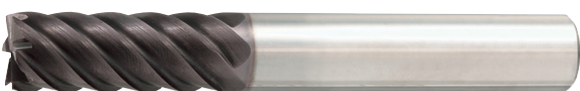
Icon key page 2



EDP	Dimensions					No. Flutes	Price
	D	L	l	d			
HP450-1181	3	51	10	3		4	£20.46
HP450-1575	4	51	14	4		4	£25.44
HP450-1969	5	51	16	5		4	£28.02
HP450-2362	6	64	19	6		6	£34.48
HP450-3150	8	64	21	8		6	£49.87
HP450-3937	10	64	25	10		6	£71.96
HP450-4724	12	76	25	12		6	£97.44
HP450-5512	14	89	30	14		6	£127.11
HP450-6299	16	89	35	16		6	£190.91
HP450-7087	18	102	35	18		6	£207.51
HP450-7874	20	102	38	20		6	£232.52
HP450-8661	22	102	38	22		6	£283.14
HP450-9843	25	102	38	25		8	£368.92

HYP-LS-ROCKET-MILL

- ▶ As above, but long series.

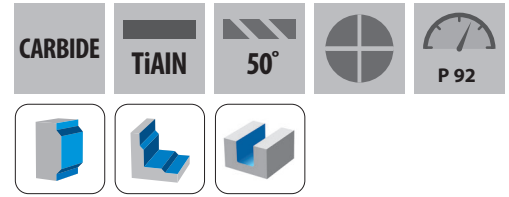


EDP	Dimensions					No. Flutes	Price
	D	L	l	d			
HP450L-2362	6	100	26	6		6	£44.93
HP450L-3150	8	100	36	8		6	£66.32
HP450L-3937	10	100	46	10		6	£95.98
HP450L-4724	12	110	56	12		6	£130.42
HP450L-6299	16	130	66	16		6	£238.63
HP450L-7874	20	140	76	20		6	£305.95
HP450L-9843	25	180	92	25		8	£535.45

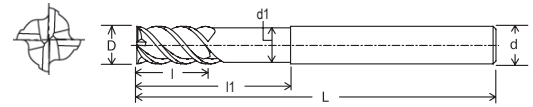
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	○	○	○	○	○	○		○	○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
								○	○			

- ▶ 4 flutes, regular, high helix, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiALN Coated



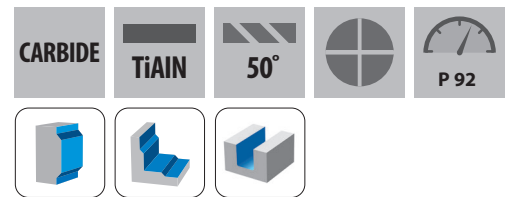
Icon key page 2



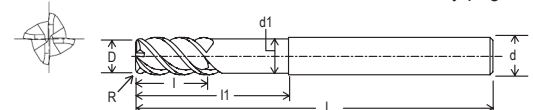
EDP	Dimensions						Price
	D	L	l	l1	d1	d	
HP453-1575	4	60	6	12	3,9	4	£25.96
HP453-2362	6	60	9	18	5,9	6	£36.84
HP453-3150	8	75	12	24	7,9	8	£45.81
HP453-3937	10	80	15	30	9,9	10	£57.21
HP453-4724	12	102	18	36	11,9	12	£86.61
HP453-6299	16	110	24	48	15,9	16	£136.40
HP453-7874	20	125	30	60	19,9	20	£207.80

HYP-CR-EHS

- ▶ 4 flutes, regular, corner radius, high helix, general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiALN Coated



Icon key page 2



EDP	Dimensions							Price
	D	R	L	l	l1	d1	d	
HP456-2363	6	0.5	60	9	18	5,9	6	£45.63
HP456-2364	6	1.0	60	9	18	5,9	6	£45.63
HP456-3151	8	0.5	75	12	24	7,9	8	£56.75
HP456-3152	8	1.0	75	12	24	7,9	8	£56.75
HP456-3938	10	0.5	80	15	30	9,9	10	£70.84
HP456-3939	10	1.0	80	15	30	9,9	10	£70.84
HP456-4725	12	0.5	102	18	36	11,9	12	£107.24
HP456-4726	12	1.0	102	18	36	11,9	12	£107.24
HP456-4727	12	1.5	102	18	36	11,9	12	£107.24

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
○	○	○	○	○	○	○	○	○	○	○	○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

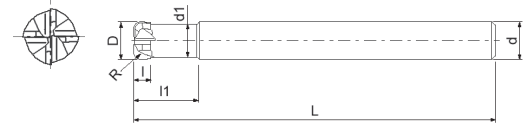
HYP-HS-CRE

GENERAL APPLICATIONS

- ▶ 4 flutes, regular, corner radius, low speed high feed
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiALN Coated



Icon key page 2



EDP	Dimensions							Price
	D	R	L	l	l1	d1	d	
48340060	6	1,5	57	2,5	24	5	6	£36.39
48340080	8	2,0	63	3,5	32	7	8	£43.55
48340100	10	2,0	72	4	40	9	10	£54.84
48340120	12	3,0	83	5	48	11	12	£66.25

⊙ EXCELLENT ○ GOOD

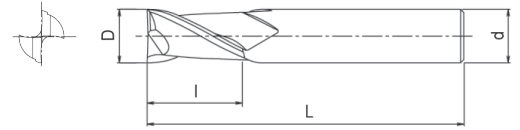
Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
⊙	⊙	⊙	⊙	⊙	⊙	⊙	○				⊙	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP

- ▶ 2 flutes, regular, counterboring, for general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiALN Coated



Counterboring holes for bolts and pre drilled holes on angled surfaces.

Icon key page 2



EDP	Dimensions				Price
	D	L	l	d	
48370040	4	50	11	6	£46.62
48370050	5	60	13	6	£46.62
48370060	6	60	13	6	£53.05
48370070	7	70	16	8	£67.95
48370080	8	70	19	8	£67.95
48370090	9	80	19	10	£89.89
48370100	10	80	22	10	£89.89

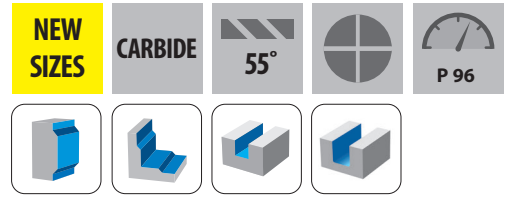
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
⊙	⊙	⊙	⊙	⊙	⊙	○		○	○		⊙	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
○				○								

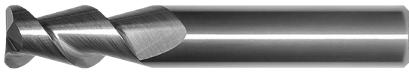
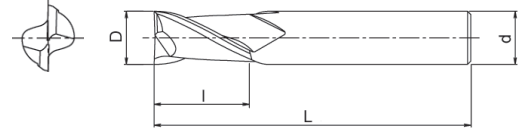
HYP-EDS-55 / CR-EDS-55

FOR ALUMINIUM

- ▶ 2 flutes, regular, centre cutting, square end & corner radius 55° helix for aluminium
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright



Icon key page 2

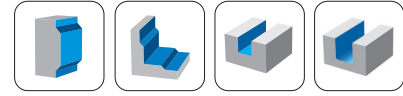


EDP	Dimensions					Price
	D	R	L	l	d	
402-118155	3	-	39	10	3	£10.00
402-157655	4	-	51	14	4	£11.67
402-196855	5	-	51	16	5	£15.33
402-236255	6	-	64	19	6	£18.33
402-236255R03	6	0,3	64	19	6	£18.33
402-236255R05	6	0,5	64	19	6	£18.33
402-236255R10	6	1,0	64	19	6	£18.33
402-315055	8	-	64	21	8	£21.67
402-315055R03	8	0,3	64	21	8	£21.67
402-315055R05	8	0,5	64	21	8	£21.67
402-315055R10	8	1,0	64	21	8	£21.67
402-315055R15	8	1,5	64	21	8	£21.67
402-393755	10	-	70	25	10	£36.67
402-393755R05	10	0,5	70	25	10	£36.67
402-393755R10	10	1,0	70	25	10	£36.67
402-393755R15	10	1,5	70	25	10	£36.67
402-393755R20	10	2,0	70	25	10	£36.67
402-472455	12	-	76	25	12	£50.00
402-472455R05	12	0,5	76	25	12	£50.00
402-472455R10	12	1,0	76	25	12	£50.00
402-472455R15	12	1,5	76	25	12	£50.00
402-472455R20	12	2,0	76	25	12	£50.00
402-472455R30	12	3,0	76	25	12	£50.00
402-551255	14	-	89	30	14	£74.55
402-629955	16	-	89	32	16	£83.33
402-629955R05	16	0,5	89	32	16	£83.33
402-629955R10	16	1,0	89	32	16	£83.33
402-629955R15	16	1,5	89	32	16	£83.33
402-629955R20	16	2,0	89	32	16	£83.33
402-629955R30	16	3,0	89	32	16	£83.33
402-708755	18	-	102	35	18	£102.73
402-787455	20	-	102	38	20	£120.00
402-984355	25	-	102	38	25	£165.45

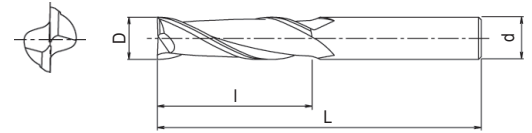
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
○				⊙								

- ▶ 2 flutes, long, centre cutting, square end & corner radius
55° helix for aluminium
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright



Icon key page 2



EDP	Dimensions					Price
	D	R	L	l	d	
462-118155	3	-	57	19	3	£12.50
462-157655	4	-	57	19	4	£14.58
462-196855	5	-	64	25	5	£19.16
462-236255	6	-	76	28	6	£22.92
462-236255R03	6	0,3	76	28	6	£22.92
462-236255R05	6	0,5	76	28	6	£22.92
462-236255R10	6	1,0	76	28	6	£22.92
462-315055	8	-	76	29	8	£27.08
462-315055R03	8	0,3	76	29	8	£27.08
462-315055R05	8	0,5	76	29	8	£27.08
462-315055R10	8	1,0	76	29	8	£27.08
462-315055R15	8	1,5	76	29	8	£27.08
462-393755	10	-	76	32	10	£45.83
462-393755R05	10	0,5	76	32	10	£45.83
462-393755R10	10	1,0	76	32	10	£45.83
462-393755R15	10	1,5	76	32	10	£45.83
462-393755R20	10	2,0	76	32	10	£45.83
462-472455	12	-	102	51	12	£62.50
462-472455R05	12	0,5	102	51	12	£62.50
462-472455R10	12	1,0	102	51	12	£62.50
462-472455R15	12	1,5	102	51	12	£62.50
462-472455R20	12	2,0	102	51	12	£62.50
462-472455R30	12	3,0	102	51	12	£62.50
462-551255	14	-	127	57	14	£93.19
462-629955	16	-	127	57	16	£104.17
462-629955R05	16	0,5	127	57	16	£104.17
462-629955R10	16	1,0	127	57	16	£104.17
462-629955R15	16	1,5	127	57	16	£104.17
462-629955R20	16	2,0	127	57	16	£104.17
462-629955R30	16	3,0	127	57	16	£104.17
462-708755	18	-	127	57	18	£128.41
462-787455	20	-	127	57	20	£150.00
462-984355	25	-	127	57	25	£206.81

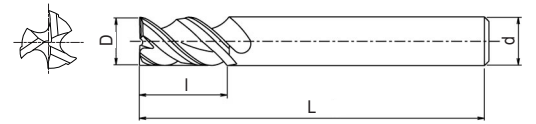
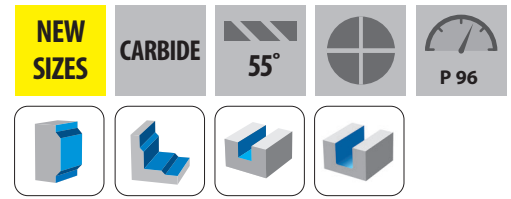
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
○				⊙								

HYP-ETS-55 / CR-ETS-55

FOR ALUMINIUM

- ▶ 3 flutes, regular, centre cutting, square end & corner radius 55° helix for aluminium
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright



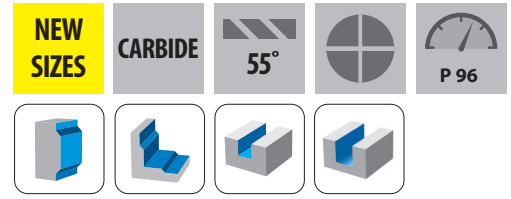
Icon key page 2

EDP	Dimensions					Price
	D	R	L	l	d	
403-118155	3	-	39	10	3	£10.00
403-157655	4	-	51	14	4	£11.67
403-196855	5	-	51	16	5	£15.33
403-236255	6	-	64	19	6	£18.33
403-236255R03	6	0,3	64	19	6	£18.33
403-236255R05	6	0,5	64	19	6	£18.33
403-236255R10	6	1,0	64	19	6	£18.33
403-315055	8	-	64	21	8	£21.67
403-315055R03	8	0,3	64	21	8	£21.67
403-315055R05	8	0,5	64	21	8	£21.67
403-315055R10	8	1,0	64	21	8	£21.67
403-315055R15	8	1,5	64	21	8	£21.67
403-393755	10	-	70	25	10	£36.67
403-393755R05	10	0,5	70	25	10	£36.67
403-393755R10	10	1,0	70	25	10	£36.67
403-393755R15	10	1,5	70	25	10	£36.67
403-393755R20	10	2,0	70	25	10	£36.67
403-472455	12	-	76	25	12	£50.00
403-472455R05	12	0,5	76	25	12	£50.00
403-472455R10	12	1,0	76	25	12	£50.00
403-472455R15	12	1,5	76	25	12	£50.00
403-472455R20	12	2,0	76	25	12	£50.00
403-472455R30	12	3,0	76	25	12	£50.00
403-551255	14	-	89	30	14	£74.55
403-629955	16	-	89	32	16	£83.33
403-629955R05	16	0,5	89	32	16	£83.33
403-629955R10	16	1,0	89	32	16	£83.33
403-629955R15	16	1,5	89	32	16	£83.33
403-629955R20	16	2,0	89	32	16	£83.33
403-629955R30	16	3,0	89	32	16	£83.33
403-708755	18	-	102	35	18	£102.73
403-787455	20	-	102	38	20	£120.00
403-984355	25	-	102	38	25	£165.45

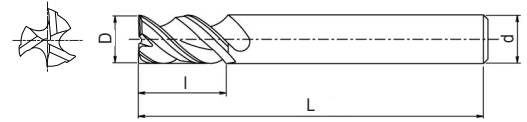
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
○				⊙								

- ▶ 3 flutes, long, centre cutting, square end & corner radius 55° helix for aluminium
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright



Icon key page 2



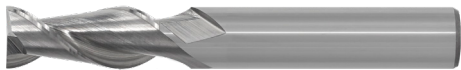
EDP	Dimensions					Price
	D	R	L	l	d	
463-118155	3	-	57	19	3	£12.50
463-157655	4	-	57	19	4	£14.58
463-196855	5	-	64	25	5	£19.16
463-236255	6	-	76	28	6	£22.92
463-236255R03	6	0,3	76	28	6	£22.92
463-236255R05	6	0,5	76	28	6	£22.92
463-236255R10	6	1,0	76	28	6	£22.92
463-315055	8	-	76	29	8	£27.08
463-315055R03	8	0,3	76	29	8	£27.08
463-315055R05	8	0,5	76	29	8	£27.08
463-315055R10	8	1,0	76	29	8	£27.08
463-315055R15	8	1,5	76	29	8	£27.08
463-393755	10	-	76	32	10	£45.83
463-393755R05	10	0,5	76	32	10	£45.83
463-393755R10	10	1,0	76	32	10	£45.83
463-393755R15	10	1,5	76	32	10	£45.83
463-393755R20	10	2,0	76	32	10	£45.83
463-472455	12	-	102	51	12	£62.50
463-472455R05	12	0,5	102	51	12	£62.50
463-472455R10	12	1,0	102	51	12	£62.50
463-472455R15	12	1,5	102	51	12	£62.50
463-472455R20	12	2,0	102	51	12	£62.50
463-472455R30	12	3,0	102	51	12	£62.50
463-551255	14	-	127	57	14	£93.19
463-629955	16	-	127	57	16	£104.17
463-629955R05	16	0,5	127	57	16	£104.17
463-629955R10	16	1,0	127	57	16	£104.17
463-629955R15	16	1,5	127	57	16	£104.17
463-629955R20	16	2,0	127	57	16	£104.17
463-629955R30	16	3,0	127	57	16	£104.17
463-708755	18	-	127	57	18	£128.41
463-787455	20	-	127	57	20	£150.00
463-984355	25	-	127	57	25	£206.81

⊙ EXCELLENT ○ GOOD

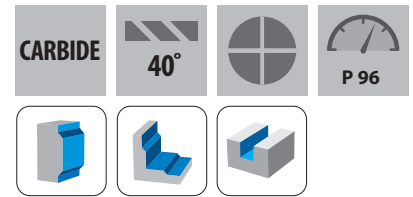
Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
○				⊙								

HYP-AL-EDS

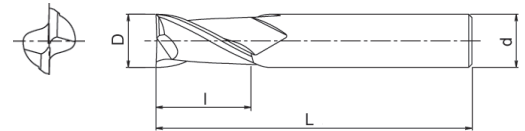
- ▶ 2 flutes, regular, centre cutting, for aluminium
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright



FOR ALUMINIUM



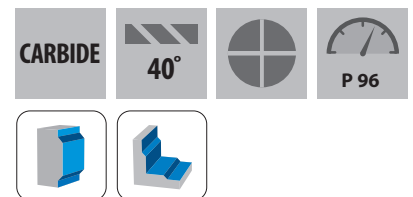
Icon key page 2



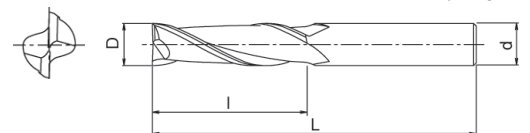
EDP	Dimensions				Price
	D	L	l	d	
440-2362	6	64	19	6	£31.14
440-3150	8	64	21	8	£31.93
440-3937	10	70	25	10	£43.40
440-4724	12	76	25	12	£70.84
440-6299	16	89	32	16	£109.18
440-7874	20	102	38	20	£161.02
440-9843	25	127	57	25	£201.27

HYP-AL-EDL

- ▶ 2 flutes, long, centre cutting, for aluminium
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright



Icon key page 2

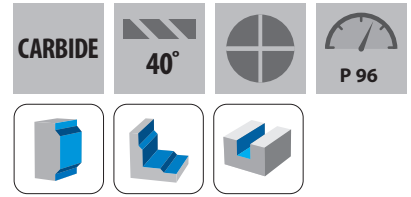


EDP	Dimensions				Price
	D	L	l	d	
440-2363	6	102	38	6	£46.75
440-3151	8	102	41	8	£52.58
440-3938	10	102	51	10	£70.84
440-4725	12	102	51	12	£92.86
440-6300	16	127	57	16	£177.10
440-7875	20	127	57	20	£201.27
440-9844	25	152	76	25	£240.00

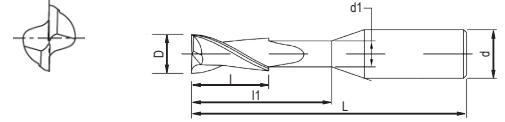
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
○				⊙								

- ▶ 2 flutes, long (with neck), centre cutting, for aluminium
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright



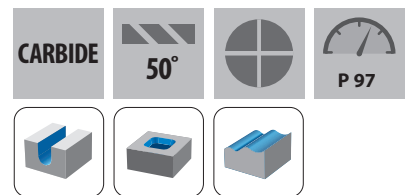
Icon key page 2



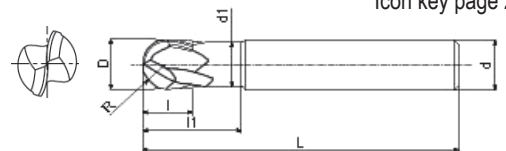
EDP	Dimensions						Price
	D	L	l	l1	d1	d	
430-7222	3	75	3	12	2,8	6	£48.69
430-7223	4	75	4	15	3,8	6	£48.69
430-7224	5	75	5	20	4,8	6	£48.69
430-7225	6	100	6	20	5,8	6	£50.28
430-7226	8	100	8	25	7,8	8	£65.26
430-7227	10	100	10	25	9,8	10	£97.61
430-7228	12	100	12	40	11,8	12	£117.54

HYP-AL-LS-EBD

- ▶ 2 flutes, long (with neck), ball end, for aluminium
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright



Icon key page 2



EDP	Dimensions						Price
	D	L	l	l1	d1	d	
430-7229	3	75	5	9	2,8	6	£48.71
430-7230	4	75	6	15	3,8	6	£48.71
430-7231	5	75	7	18	4,8	6	£48.71
430-7232	6	100	8	20	5,8	6	£52.19
430-7233	8	100	10	25	7,8	8	£67.44
430-7234	10	100	12	30	9,8	10	£102.57
430-7235	12	100	16	40	11,8	12	£117.56

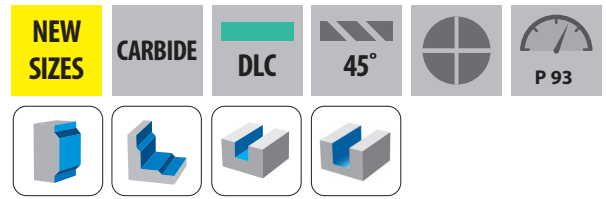
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
○				⊙								

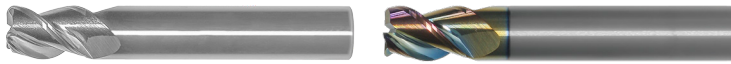
HYP-ACE-STUB / CR-ACE-STUB / DLC

FOR ALUMINIUM

- ▶ 3 flutes, short, centre cutting, square end and corner radius
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright / DLC (polished flutes)



Icon key page 2

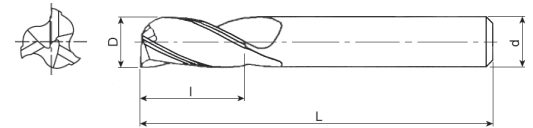


Bright

DLC coated

HYP-ACE / CR-ACE-STUB	
EDP	Price
475-1181	£10.00
475-1575	£11.67
475-2362	£18.33
475-2362R03	£18.33
475-2362R05	£18.33
475-2362R10	£18.33
475-3150	£21.67
475-3150R03	£21.67
475-3150R05	£21.67
475-3150R10	£21.67
475-3150R15	£21.67
475-3937	£36.67
475-3937R05	£36.67
475-3937R10	£36.67
475-3937R15	£36.67
475-3937R20	£36.67
475-4724	£50.00
475-4724R05	£50.00
475-4724R10	£50.00
475-4724R15	£50.00
475-4724R20	£50.00
475-4724R30	£50.00
475-6299	£83.33
475-6299R05	£83.33
475-6299R10	£83.33
475-6299R15	£83.33
475-6299R20	£83.33
475-6299R30	£83.33
475-7874	£166.67
475-9843	£266.67

HYP-ACE / CR-ACE-STUB-DLC	
EDP	Price
475-118111	£17.50
475-157511	£19.17
475-236211	£25.83
475-2362R0311	£25.83
475-2362R0511	£25.83
475-2362R1011	£25.83
475-315011	£32.97
475-3150R0311	£32.97
475-3150R0511	£32.97
475-3150R1011	£32.97
475-3150R1511	£32.97
475-393711	£51.77
475-3937R0511	£51.77
475-3937R1011	£51.77
475-3937R1511	£51.77
475-3937R2011	£51.77
475-472411	£65.45
475-4724R0511	£65.45
475-4724R1011	£65.45
475-4724R1511	£65.45
475-4724R2011	£65.45
475-4724R3011	£65.45
475-629911	£105.03
475-6299R0511	£105.03
475-6299R1011	£105.03
475-6299R1511	£105.03
475-6299R2011	£105.03
475-6299R3011	£105.03
475-787411	£200.22
475-984311	£313.32



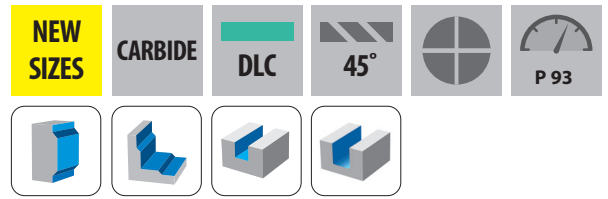
Dimensions				
D	R	L	l	d
3	-	38	4,5	6
4	-	51	6	6
6	-	64	9	6
6	0,3	64	9	6
6	0,5	64	9	6
6	1,0	64	9	6
8	-	64	12	8
8	0,3	64	12	8
8	0,5	64	12	8
8	1,0	64	12	8
8	1,5	64	12	8
10	-	64	15	10
10	0,5	64	15	10
10	1,0	64	15	10
10	1,5	64	15	10
10	2,0	64	15	10
12	-	76	18	12
12	0,5	76	18	12
12	1,0	76	18	12
12	1,5	76	18	12
12	2,0	76	18	12
12	3,0	76	18	12
16	-	89	24	16
16	0,5	89	24	16
16	1,0	89	24	16
16	1,5	89	24	16
16	2,0	89	24	16
16	3,0	89	24	16
20	-	102	30	20
25	-	102	37,5	25

⊙ EXCELLENT ○ GOOD

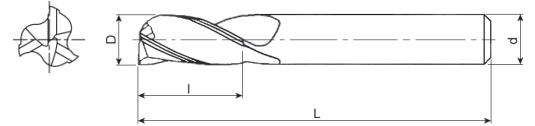
Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
⊙				⊙						○		

DLC coated = ⊙ for Plastic

- ▶ 3 flutes, regular, centre cutting, square end and corner radius
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright / DLC (polished flutes)



Icon key page 2



Bright		DLC coated		Dimensions				
EDP	Price	EDP	Price	D	R	L	l	d
476-1181	£10.00	476-118111	£17.50	3	-	38	7,5	6
476-1181R025	£10.00	476-1181R02511	£17.50	3	0,25	38	7,5	6
476-1181R05	£10.00	476-1181R0511	£17.50	3	0,5	38	7,5	6
476-1181R075	£10.00	476-1181R07511	£17.50	3	0,75	38	7,5	6
476-1181R10	£10.00	476-1181R1011	£17.50	3	1,0	38	7,5	6
476-1575	£11.67	476-157511	£19.17	4	-	51	10	6
476-1575R025	£11.67	476-1575R02511	£19.17	4	0,25	51	10	6
476-1575R50	£11.67	476-1575R5011	£19.17	4	0,5	51	10	6
476-1575R075	£11.67	476-1575R07511	£19.17	4	0,75	51	10	6
476-1575R10	£11.67	476-1575R1011	£19.17	4	1,0	51	10	6
476-2362	£18.33	476-236211	£25.83	6	-	64	15	6
476-2362R025	£18.33	476-2362R02511	£25.83	6	0,25	64	15	6
476-2362R03	£18.33	476-2362R0311	£25.83	6	0,3	64	15	6
476-2362R05	£18.33	476-2362R0511	£25.83	6	0,5	64	15	6
476-2362R075	£18.33	476-2362R07511	£25.83	6	0,75	64	15	6
476-2362R10	£18.33	476-2362R1011	£25.83	6	1,0	64	15	6
476-3150	£21.67	476-315011	£32.97	8	-	64	20	8
476-3150R025	£21.67	476-3150R02511	£32.97	8	0,25	64	20	8
476-3150R05	£21.67	476-3150R0511	£32.97	8	0,5	64	20	8
476-3150R075	£21.67	476-3150R07511	£32.97	8	0,75	64	20	8
476-3150R10	£21.67	476-3150R1011	£32.97	8	1,0	64	20	8
476-3150R125	£21.67	476-3150R12511	£32.97	8	1,25	64	20	8
476-3150R15	£21.67	476-3150R1511	£32.97	8	1,5	64	20	8
476-3937	£36.67	476-393711	£51.77	10	-	64	25	10
476-3937R025	£36.67	476-3937R02511	£51.77	10	0,25	64	25	10
476-3937R05	£36.67	476-3937R0511	£51.77	10	0,5	64	25	10
476-3937R075	£36.67	476-3937R07511	£51.77	10	0,75	64	25	10
476-3937R10	£36.67	476-3937R1011	£51.77	10	1,0	64	25	10
476-3937R125	£36.67	476-3937R12511	£51.77	10	1,25	64	25	10
476-3937R15	£36.67	476-3937R1511	£51.77	10	1,5	64	25	10
476-3937R20	£36.67	476-3937R2011	£51.77	10	2,0	64	25	10
476-3937R24	£36.67	476-3937R2411	£51.77	10	2,4	64	25	10
476-4724	£50.00	476-472411	£65.45	12	-	76	30	12

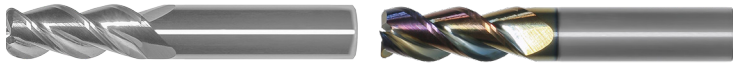
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25-35 HRC	35-45 HRC	45-52 HRC	52-62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
⊙				⊙						○		

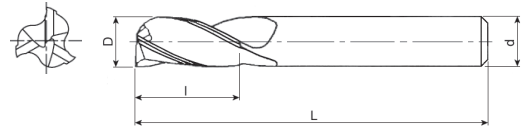
DLC coated = ⊙ for Plastic

HYP-ACE-REGULAR / CR-ACE-REGULAR / DLC

FOR ALUMINIUM



NEW SIZES



HYP-ACE-REGULAR		HYP-ACE-REGULAR-DLC		Dimensions				
EDP	Price	EDP	Price	D	R	L	l	d
476-4724R025	£50.00	476-4724R02511	£65.45	12	0,25	76	30	12
476-4724R05	£50.00	476-4724R0511	£65.45	12	0,5	76	30	12
476-4724R075	£50.00	476-4724R07511	£65.45	12	0,75	76	30	12
476-4724R10	£50.00	476-4724R1011	£65.45	12	1,0	76	30	12
476-4724R125	£50.00	476-4724R12511	£65.45	12	1,25	76	30	12
476-4724R15	£50.00	476-4724R1511	£65.45	12	1,5	76	30	12
476-4724R20	£50.00	476-4724R2011	£65.45	12	2,0	76	30	12
476-4724R24	£50.00	476-4724R2411	£65.45	12	2,4	76	30	12
476-4724R30	£50.00	476-4724R3011	£65.45	12	3,0	76	30	12
476-6299	£83.33	476-629911	£105.03	16	-	89	40	16
476-6299R025	£83.33	476-6299R02511	£105.03	16	0,25	89	40	16
476-6299R05	£83.33	476-6299R0511	£105.03	16	0,5	89	40	16
476-6299R075	£83.33	476-6299R07511	£105.03	16	0,75	89	40	16
476-6299R10	£83.33	476-6299R1011	£105.03	16	1,0	89	40	16
476-6299R125	£83.33	476-6299R12511	£105.03	16	1,25	89	40	16
476-6299R15	£83.33	476-6299R1511	£105.03	16	1,5	89	40	16
476-6299R20	£83.33	476-6299R2011	£105.03	16	2,0	89	40	16
476-6299R24	£83.33	476-6299R2411	£105.03	16	2,4	89	40	16
476-6299R30	£83.33	476-6299R3011	£105.03	16	3,0	89	40	16
476-7874	£166.67	476-787411	£200.22	20	-	102	50	20
476-7874R025	£166.67	476-7874R02511	£200.22	20	0,25	102	50	20
476-7874R05	£166.67	476-7874R0511	£200.22	20	0,5	102	50	20
476-7874R075	£166.67	476-7874R07511	£200.22	20	0,75	102	50	20
476-7874R10	£166.67	476-7874R1011	£200.22	20	1,0	102	50	20
476-7874R125	£166.67	476-7874R12511	£200.22	20	1,25	102	50	20
476-7874R15	£166.67	476-7874R1511	£200.22	20	1,5	102	50	20
476-7874R20	£166.67	476-7874R2011	£200.22	20	2,0	102	50	20
476-7874R24	£166.67	476-7874R2411	£200.22	20	2,4	102	50	20
476-7874R30	£166.67	476-7874R3011	£200.22	20	3,0	102	50	20
476-9843	£266.67	476-984311	£307.21	25	-	127	62,5	25
476-9843R025	£266.67	476-9843R02511	£307.21	25	0,25	127	62,5	25
476-9843R05	£266.67	476-9843R0511	£307.21	25	0,5	127	62,5	25
476-9843R075	£266.67	476-9843R07511	£307.21	25	0,75	127	62,5	25
476-9843R10	£266.67	476-9843R1011	£307.21	25	1,0	127	62,5	25
476-9843R125	£266.67	476-9843R12511	£307.21	25	1,25	127	62,5	25
476-9843R15	£266.67	476-9843R1511	£307.21	25	1,5	127	62,5	25
476-9843R20	£266.67	476-9843R2011	£307.21	25	2,0	127	62,5	25
476-9843R24	£266.67	476-9843R2411	£307.21	25	2,4	127	62,5	25
476-9843R30	£266.67	476-9843R3011	£307.21	25	3,0	127	62,5	25

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25-35 HRC	35-45 HRC	45-52 HRC	52-62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
⊙				⊙						○		

DLC coated = ⊙ for Plastic



Specials made to order

Our vast experience and expertise in the production of Special cutting tools has made OSG UK a leading force in the special cutting tool market. Together with our parent company OSG Corporation of Japan, we are able to offer exceptional technical support and production capability.

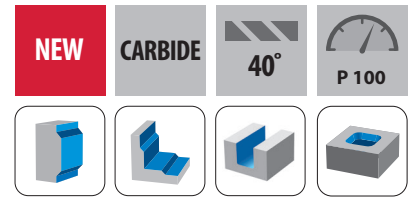
We are continuously striving to improve our existing product range and service and to this end our “HYPRO” range of carbide end mills and drills has been designed to offer exceptional performance and value for money.

To compliment this we are pleased to announce the introduction of a specials “HYPRO” carbide tool service. Special tools can now be offered for a quick turnaround to many different designs

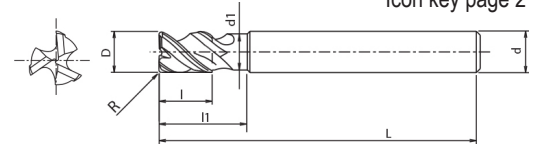
HYP-AL-PKE

FOR ALUMINIUM

- ▶ 3 flutes, regular, corner radius, for pocket milling applications in aluminium and non-ferrous materials
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright



Icon key page 2



EDP	Dimensions							Price
	D	R	L	l1	l	d1	d	
403-2362PR05	6	0,5	60	15	9	5,5	6	£21.67
403-2362PR10	6	1,0	60	15	9	5,5	6	£21.67
403-3150PR05	8	0,5	70	20	12	7,5	8	£27.50
403-3150PR10	8	1,0	70	20	12	7,5	8	£27.50
403-3937PR05	10	0,5	80	25	15	9,5	10	£41.85
403-3937PR10	10	1,0	80	25	15	9,5	10	£41.85
403-4724PR05	12	0,5	90	30	18	11,5	12	£55.70
403-4724PR10	12	1,0	90	30	18	11,5	12	£55.70
403-6299PR05	16	0,5	108	40	24	15,5	16	£106.67
403-6299PR10	16	1,0	108	40	24	15,5	16	£106.67
403-6299PR20	16	2,0	108	40	24	15,5	16	£106.67
403-6299PR30	16	3,0	108	40	24	15,5	16	£106.67

AVAILABLE AUTUMN 2020

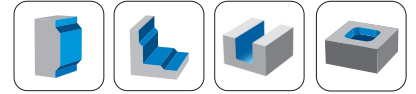
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
⊙				⊙						○		

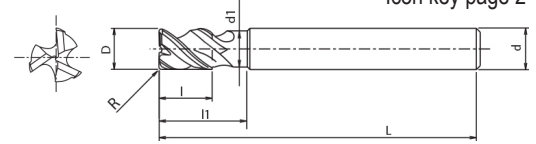
- ▶ 3 flutes, regular, corner radius, for pocket milling applications in aluminium and non-ferrous materials
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : DLC



NEW CARBIDE **DLC** 40° P 100



Icon key page 2



EDP	Dimensions							Price
	D	R	L	l1	l	d1	d	
403-236211PR05	6	0,5	60	15	9	5,5	6	£27.09
403-236211PR10	6	1,0	60	15	9	5,5	6	£27.09
403-315011PR05	8	0,5	70	20	12	7,5	8	£34.38
403-315011PR10	8	1,0	70	20	12	7,5	8	£34.38
403-393711PR05	10	0,5	80	25	15	9,5	10	£52.31
403-393711PR10	10	1,0	80	25	15	9,5	10	£52.31
403-472411PR05	12	0,5	90	30	18	11,5	12	£66.84
403-472411PR10	12	1,0	90	30	18	11,5	12	£66.84
403-629911PR05	16	0,5	108	40	24	15,5	16	£122.67
403-629911PR10	16	1,0	108	40	24	15,5	16	£122.67
403-629911PR20	16	2,0	108	40	24	15,5	16	£122.67
403-629911PR30	16	3,0	108	40	24	15,5	16	£122.67



AVAILABLE AUTUMN 2020



Technical

Coating: DLC
Thickness: 0,5 - 1,5um
Hardness: 5000 HV.
Application: non-ferrous metals and plastic

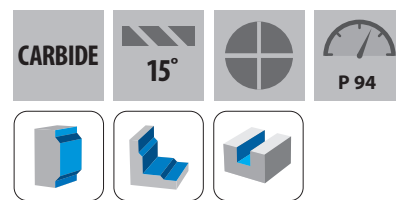
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
⊙				⊙						⊙		

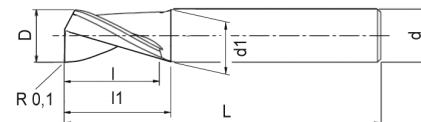
HYP-F1

FOR ALUMINIUM / PLASTIC

- ▶ Single flute, short, centre cutting, for aluminium and plastics
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Bright

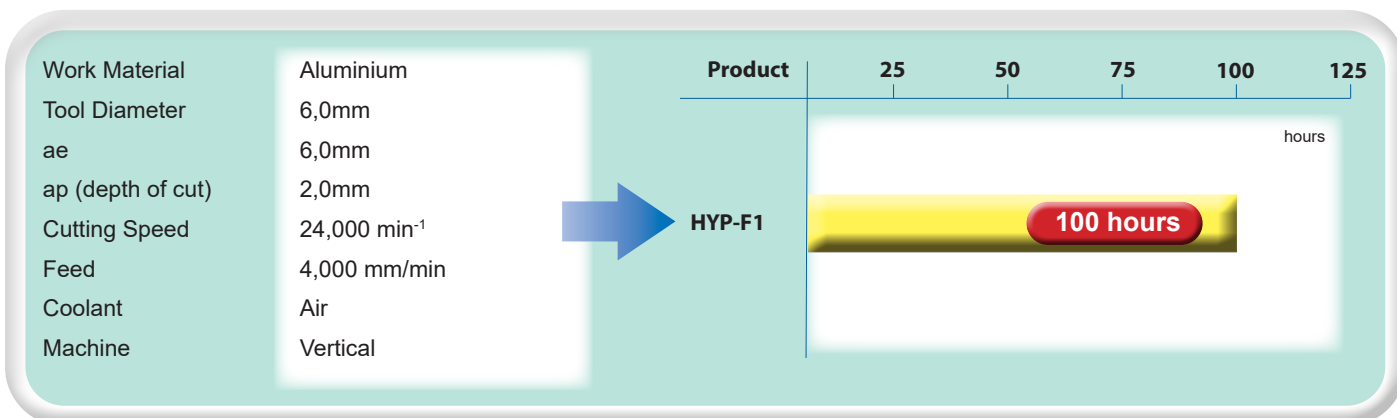


Icon key page 2



EDP	Dimensions						Price
	D	L	l	l1	d1	d	
48360030	3	40	4	5	-	6	£34.15
48360040	4	50	5	6	-	6	£34.15
48360050	5	50	7	8	-	6	£38.14
48360060	6	50	8	15	5,4	6	£38.14
48360080	8	60	11	20	7	8	£53.21
48360100	10	70	13	25	9	10	£74.91
48360120	12	70	15	30	11	12	£87.69

Technical



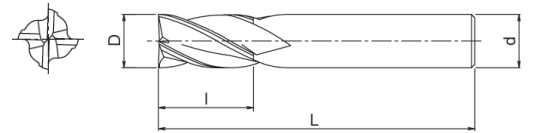
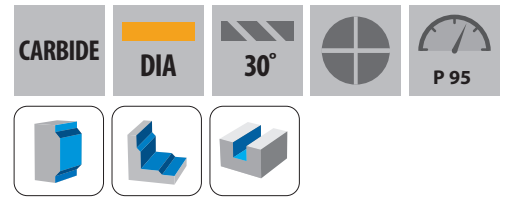
Processing examples



⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
				⊙						⊙		

- ▶ 4 flutes, regular, centre cutting, for plastic and graphite
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Diamond Coated



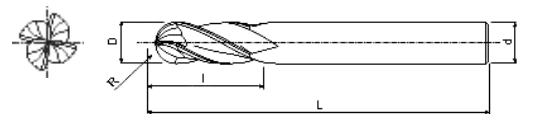
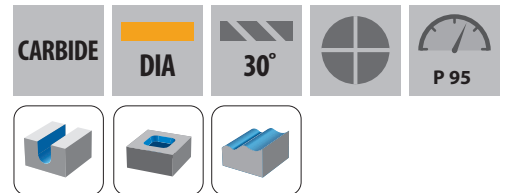
Icon key page 2



EDP	Dimensions				Price
	D	L	l	d	
404-0394DIA	1	39	3	3	£24.28
404-0787DIA	2	39	7	3	£34.71
404-1181DIA	3	39	10	3	£33.74
404-1378DIA	3.5	51	12	4	£53.78
404-1575DIA	4	51	14	4	£54.35
404-1968DIA	5	51	16	5	£65.48
404-2362DIA	6	64	19	6	£74.35
404-3150DIA	8	64	21	8	£104.75
404-3937DIA	10	70	25	10	£124.82
404-4724DIA	12	76	25	12	£156.61
404-6299DIA	16	89	32	16	£228.86
404-7874DIA	20	102	38	20	£303.07

HYP-EBM-(DIAMOND)

- ▶ 4 flutes, regular, ball end, for plastic & graphite
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : Diamond Coated



Icon key page 2

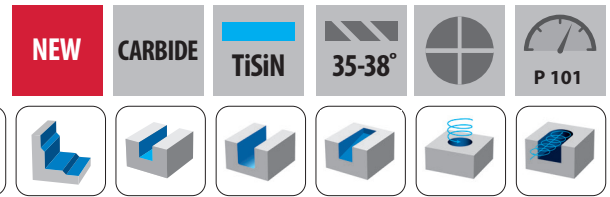
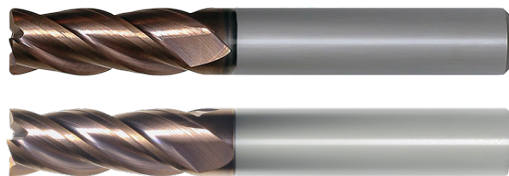


EDP	Dimensions				Price
	D	L	l	d	
404-1181-BNDIA	3	39	10	3	£34.82
404-1575-BNDIA	4	51	14	4	£55.83
404-2362-BNDIA	6	64	19	6	£76.21
404-2756-BNDIA	7	64	19	8	£107.30
404-3937-BNDIA	10	70	25	10	£127.60

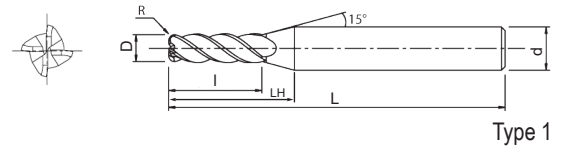
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25-35 HRC	35-45 HRC	45-52 HRC	52-62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
○				⊙	○					⊙	⊙	

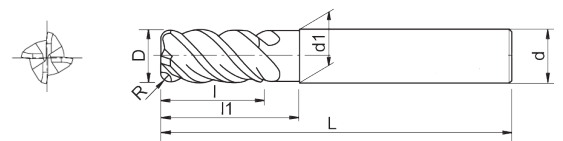
- ▶ 4 flutes, regular square end & corner radius, variable lead for difficult to machine materials
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiSiN Coated



Icon key page 2



Type 1



Type 2

VARIABLE LEAD

EDP	Dimensions								Type	Price
	D	R	L	LH	I1	I	d1	d		
501-1181	3	-	58	17	-	8	-	6	1	£21.00
501-1181R03	3	0,3	58	17	-	8	-	6	1	£24.00
501-1181R05	3	0,5	58	17	-	8	-	6	1	£24.00
501-1575	4	-	58	18	-	11	-	6	1	£21.00
501-1575R03	4	0,3	58	18	-	11	-	6	1	£24.00
501-1575R05	4	0,5	58	18	-	11	-	6	1	£24.00
501-1968	5	-	58	20	-	13	-	6	1	£21.00
501-1968R03	5	0,3	58	20	-	13	-	6	1	£24.00
501-1968R05	5	0,5	58	20	-	13	-	6	1	£24.00
501-2362	6	-	58	-	20	15	5,8	6	2	£22.00
501-2362R03	6	0,3	58	-	20	15	5,8	6	2	£26.00
501-2362R05	6	0,5	58	-	20	15	5,8	6	2	£26.00
501-2362R10	6	1,0	58	-	20	15	5,8	6	2	£26.00
501-2362R15	6	1,5	58	-	20	15	5,8	6	2	£26.00
501-2362R20	6	2,0	58	-	20	15	5,8	6	2	£26.00
501-3150	8	-	64	-	25	20	7,8	8	2	£27.00
501-3150R03	8	0,3	64	-	25	20	7,8	8	2	£31.00
501-3150R05	8	0,5	64	-	25	20	7,8	8	2	£31.00
501-3150R10	8	1,0	64	-	25	20	7,8	8	2	£31.00
501-3150R15	8	1,5	64	-	25	20	7,8	8	2	£31.00
501-3150R20	8	2,0	64	-	25	20	7,8	8	2	£31.00
501-3937	10	-	73	-	30	25	9,8	10	2	£40.00
501-3937R03	10	0,3	73	-	30	25	9,8	10	2	£44.00
501-3937R05	10	0,5	73	-	30	25	9,8	10	2	£44.00
501-3937R10	10	1,0	73	-	30	25	9,8	10	2	£44.00
501-3937R15	10	1,5	73	-	30	25	9,8	10	2	£44.00
501-3937R20	10	2,0	73	-	30	25	9,8	10	2	£44.00
501-3937R30	10	3,0	73	-	30	25	9,8	10	2	£44.00

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
⊙	⊙	⊙	⊙	⊙	⊙			⊙	⊙		○	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
								⊙	⊙			

EDP	Dimensions								Type	Price
	D	R	L	LH	l1	l	d1	d		
501-4724	12	-	84	-	38	30	11,8	12	2	£52.00
501-4724R03	12	0,3	84	-	38	30	11,8	12	2	£60.00
501-4724R05	12	0,5	84	-	38	30	11,8	12	2	£60.00
501-4724R10	12	1,0	84	-	38	30	11,8	12	2	£60.00
501-4724R15	12	1,5	84	-	38	30	11,8	12	2	£60.00
501-4724R20	12	2,0	84	-	38	30	11,8	12	2	£60.00
501-4724R30	12	3,0	84	-	38	30	11,8	12	2	£60.00
501-6299	16	-	93	-	45	40	15,8	16	2	£78.00
501-6299R03	16	0,3	93	-	45	40	15,8	16	2	£90.00
501-6299R05	16	0,5	93	-	45	40	15,8	16	2	£90.00
501-6299R10	16	1,0	93	-	45	40	15,8	16	2	£90.00
501-6299R15	16	1,5	93	-	45	40	15,8	16	2	£90.00
501-6299R20	16	2,0	93	-	45	40	15,8	16	2	£90.00
501-6299R30	16	3,0	93	-	45	40	15,8	16	2	£90.00
501-6299R40	16	4,0	93	-	45	40	15,8	16	2	£90.00
501-7874	20	-	105	-	60	50	19,8	20	2	£108.00
501-7874R03	20	0,3	105	-	60	50	19,8	20	2	£133.00
501-7874R05	20	0,5	105	-	60	50	19,8	20	2	£133.00
501-7874R10	20	1,0	105	-	60	50	19,8	20	2	£133.00
501-7874R15	20	1,5	105	-	60	50	19,8	20	2	£133.00
501-7874R20	20	2,0	105	-	60	50	19,8	20	2	£133.00
501-7874R30	20	3,0	105	-	60	50	19,8	20	2	£133.00
501-7874R40	20	4,0	105	-	60	50	19,8	20	2	£133.00
501-7874R50	20	5,0	105	-	60	50	19,8	20	2	£133.00

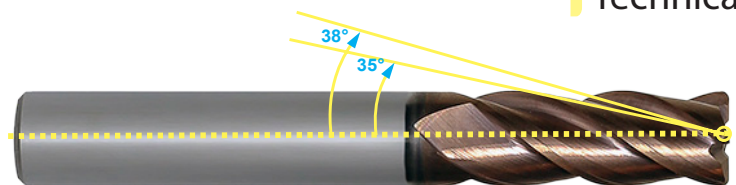
VG4

Carbide end mills incorporating new variable helix flute design for better balance, resulting in a superb surface finish. TiSiN multi layered coating for increased tool life for exotic nickel and titanium alloys.



Variable Pitch.

Variable Lead.



Technical

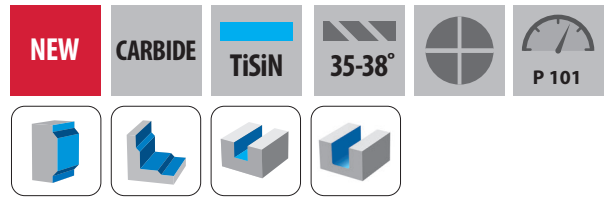
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
⊙	⊙	⊙	⊙	⊙	⊙			⊙	⊙		○	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
								⊙	⊙			

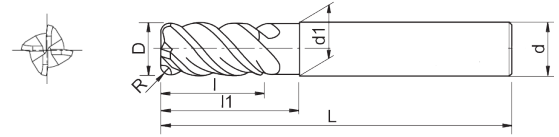
HYP-VG4-LN-EMS, CR-VG4-LN-EMS

FOR AEROSPACE ALLOYS

- ▶ 4 flutes, long series square end & corner radius, variable lead, for difficult to machine materials
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiSiN Coated



Icon key page 2



VARIABLE LEAD

EDP	Dimensions							Price
	D	R	L	l1	l	d1	d	
502-2362	6	-	100	30	12	5,8	6	£39.00
502-2362R03	6	0,3	100	30	12	5,8	6	£45.00
502-2362R05	6	0,5	100	30	12	5,8	6	£45.00
502-2362R10	6	1,0	100	30	12	5,8	6	£45.00
502-3150	8	-	100	40	16	7,6	8	£40.50
502-3150R03	8	0,3	100	40	16	7,6	8	£46.50
502-3150R05	8	0,5	100	40	16	7,6	8	£46.50
502-3150R10	8	1,0	100	40	16	7,6	8	£46.50
502-3150R15	8	1,5	100	40	16	7,6	8	£46.50
502-3937	10	-	120	50	20	9,6	10	£60.00
502-3937R03	10	0,3	120	50	20	9,6	10	£66.00
502-3937R05	10	0,5	120	50	20	9,6	10	£66.00
502-3937R10	10	1,0	120	50	20	9,6	10	£66.00
502-3937R15	10	1,5	120	50	20	9,6	10	£66.00
502-3937R20	10	2,0	120	50	20	9,6	10	£66.00
502-4724	12	-	150	60	24	11,4	12	£78.00
502-4724R03	12	0,3	150	60	24	11,4	12	£90.00
502-4724R05	12	0,5	150	60	24	11,4	12	£90.00
502-4724R10	12	1,0	150	60	24	11,4	12	£90.00
502-4724R15	12	1,5	150	60	24	11,4	12	£90.00
502-4724R20	12	2,0	150	60	24	11,4	12	£90.00
502-4724R30	12	3,0	150	60	24	11,4	12	£90.00
502-6299	16	-	150	80	32	15,2	16	£117.00
502-6299R03	16	0,3	150	80	32	15,2	16	£166.67
502-6299R05	16	0,5	150	80	32	15,2	16	£166.67
502-6299R10	16	1,0	150	80	32	15,2	16	£166.67
502-6299R15	16	1,5	150	80	32	15,2	16	£166.67
502-6299R20	16	2,0	150	80	32	15,2	16	£166.67
502-6299R30	16	3,0	150	80	32	15,2	16	£166.67

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
⊙	⊙	⊙	⊙	⊙	⊙			⊙	⊙		○	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
								⊙	⊙			

- ▶ 4 flutes, regular, corner radius, variable lead, for titanium and general applications
- ▶ Shank : FS (with flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiALN Coated

WHILE STOCKS LAST




CARBIDE

TiAlN

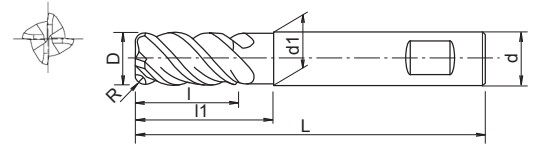
35-38°

+

P 103

Icon key page 2



VARIABLE LEAD

EDP	Dimensions							Price
	D	R	L	l	l1	d1	d	
4833006010	6	0,25	57	13	20	5,8	6	£31.59
4833008010	8	0,25	63	19	25	7,8	8	£24.30
4833010010	10	0,25	72	22	30	9,8	10	£49.37
4833012010	12	0,25	83	26	38	11,8	12	£67.02
4833016010	16	0,25	92	32	45	15,8	16	£98.81
4833020010	20	0,25	104	38	60	19,8	20	£145.69

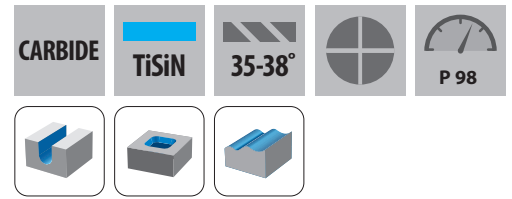
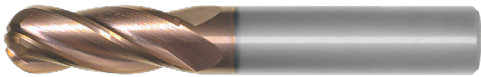
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
⊙	⊙	⊙	⊙	⊙	⊙	○		⊙	⊙		⊙	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
								⊙	⊙			

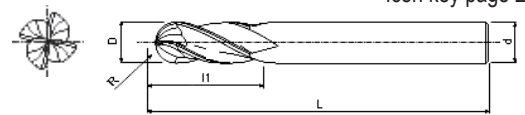
HYP-VG4-EBM

FOR AEROSPACE ALLOYS

- ▶ 4 flutes, regular, ball end, variable lead, for titanium and other difficult applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiSiN Coated



Icon key page 2



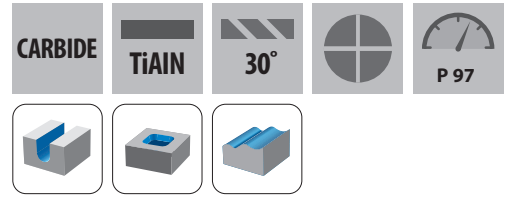
VARIABLE LEAD

EDP	Dimensions				Price
	D	L	l	d	
430-7916	3	39	10	3	£25.24
430-7917	4	51	14	4	£26.40
430-7918	5	51	16	5	£27.55
430-7919	6	64	19	6	£34.43
430-7920	8	64	21	8	£35.58
430-7921	10	70	25	10	£50.49
430-7922	12	76	26	12	£68.86

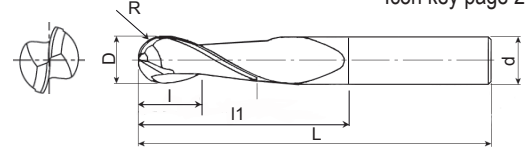
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
⊙	⊙	⊙	⊙	⊙	⊙			⊙	⊙		○	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
								⊙	⊙			

- ▶ 2 flutes, regular, ball end, for titanium and difficult applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiALN Coated



Icon key page 2



EDP	Dimensions					Price
	D	L	l	l1	d	
430-7215	3	75	5	9	6	£50.28
430-7216	4	75	6	15	6	£47.59
430-7217	5	75	7	18	6	£45.11
430-7218	6	100	8	18	6	£46.38
430-7219	8	100	10	20	8	£59.26
430-7220	10	100	12	25	10	£97.63
430-7221	12	100	16	25	12	£112.09

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
				⊙	⊙	○			○		○	○
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
								⊙	○			

- ▶ 4 flutes, regular, variable lead, for titanium and general applications
- ▶ Shank : NS (without flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiALN Coated

WHILE STOCKS LAST

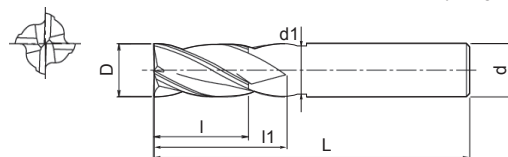
CARBIDE

TiALN

35-38°

P 103

Icon key page 2

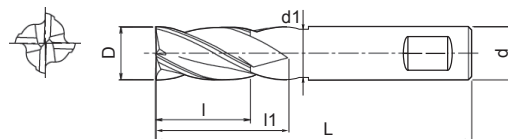


VARIABLE LEAD

EDP	Dimensions						Price
	D	L	l	l1	d1	d	
48320040	4	57	11	-	-	6	£21.86
48320050	5	57	13	-	-	6	£21.86
48320060	6	57	13	20	5,8	6	£27.26
48320080	8	63	19	25	7,8	8	£29.21
48320100	10	72	22	30	9,8	10	£42.57
48320120	12	83	26	38	11,8	12	£56.19
48320160	16	92	32	45	15,8	16	£82.90
48320200	20	104	38	60	19,8	20	£118.66

HYP-HI-(W)EMS

- ▶ As above, but with flated shank.



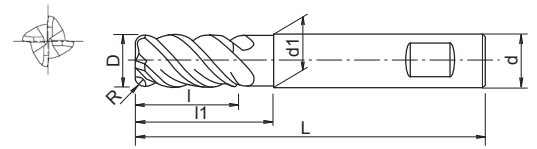
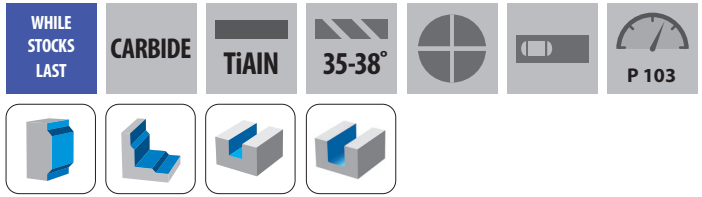
VARIABLE LEAD

EDP	Dimensions						Price
	D	L	l	l1	d1	d	
483200401	4	57	11	-	-	6	£21.86
483200501	5	57	13	-	-	6	£21.86
483200601	6	57	13	20	5,8	6	£27.26
483200801	8	63	19	25	7,8	8	£29.21
483201001	10	72	22	30	9,8	10	£42.57
483201201	12	83	26	38	11,8	12	£56.19
483201601	16	92	32	45	15,8	16	£82.90
483202001	20	104	38	60	19,8	20	£118.66

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
⊙	⊙	⊙	⊙	⊙	⊙	○		⊙	⊙		⊙	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
								⊙	⊙			

- ▶ 4 flutes, regular, corner radius, variable lead, for titanium and general applications
- ▶ Shank : FS (with flat)
- ▶ Material : MG (micro grain carbide)
- ▶ Surface treatment : TiALN Coated



Icon key page 2

VARIABLE LEAD

EDP	Dimensions							Price
	D	R	L	l	l1	d1	d	
4832004011	4	0,5	57	11	-	-	6	£25.28
4832005011	5	0,5	57	13	-	-	6	£25.28
4832006011	6	0,5	57	13	20	5,8	6	£31.59
4832006012	6	1,0	57	13	20	5,8	6	£31.59
4832006013	6	1,5	57	13	20	5,8	6	£31.59
4832006014	6	2,0	57	13	20	5,8	6	£31.59
4832008011	8	0,5	63	19	25	7,8	8	£33.89
4832008012	8	1,0	63	19	25	7,8	8	£33.89
4832008013	8	1,5	63	19	25	7,8	8	£33.89
4832008014	8	2,0	63	19	25	7,8	8	£33.89
4832010011	10	0,5	72	22	30	9,8	10	£46.22
4832010012	10	1,0	72	22	30	9,8	10	£46.22
4832010013	10	1,5	72	22	30	9,8	10	£46.22
4832010014	10	2,0	72	22	30	9,8	10	£46.22
4832010016	10	3,0	72	22	30	9,8	10	£46.22
4832012011	12	0,5	83	26	38	11,8	12	£67.02
4832012012	12	1,0	83	26	38	11,8	12	£67.02
4832012013	12	1,5	83	26	38	11,8	12	£67.02
4832012014	12	2,0	83	26	38	11,8	12	£67.02
4832012016	12	3,0	83	26	38	11,8	12	£67.02
4832016011	16	0,5	92	32	45	15,8	16	£98.81
4832016012	16	1,0	92	32	45	15,8	16	£98.81
4832016014	16	2,0	92	32	45	15,8	16	£98.81
4832016016	16	3,0	92	32	45	15,8	16	£98.81
4832016018	16	4,0	92	32	45	15,8	16	£98.81
4832020012	20	1,0	104	38	60	19,8	20	£145.69
4832020014	20	2,0	104	38	60	19,8	20	£145.69
4832020016	20	3,0	104	38	60	19,8	20	£145.69
4832020018	20	4,0	104	38	60	19,8	20	£145.69
4832020020	20	5,0	104	38	60	19,8	20	£145.69

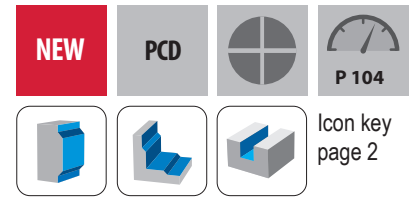
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
⊙	⊙	⊙	⊙	⊙	⊙	○		⊙	⊙		⊙	⊙
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
								⊙	⊙			

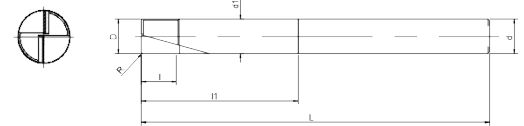
HYP-EDS-PCD

FOR GRAPHITE & CFRP

- ▶ 2 flutes, regular, centre cutting, for graphite & CFRP
- ▶ Shank : NS (without flat)
- ▶ Material : PCD
- ▶ Surface treatment : Bright



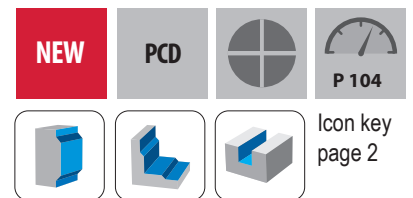
Icon key page 2



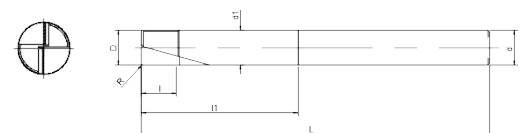
EDP	Dimensions							Price
	D	R	L	l	l1	d1	d	
PCD402-1181	3	0,2	75	3	15	2,8	6	£164.28
PCD402-1575	4	0,2	75	4	20	3,8	6	£164.28
PCD402-1968	5	0,2	75	5	25	4,8	6	£164.28
PCD402-2362	6	0,2	100	6	30	5,8	6	£170.53
PCD402-3150	8	0,2	100	8	40	7,8	8	£185.89
PCD402-3937	10	0,2	100	10	45	9,8	10	£203.37
PCD402-4724	12	0,2	100	12	45	11,8	12	£207.75

HYP-LS-EDS-PCD

- ▶ 2 flutes, regular, centre cutting, for graphite and CFRP
- ▶ Shank : NS (without flat)
- ▶ Material : PCD
- ▶ Surface treatment : Bright



Icon key page 2

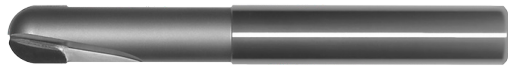
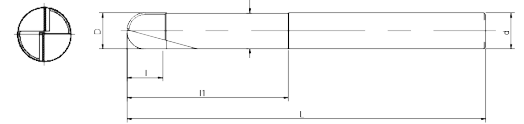
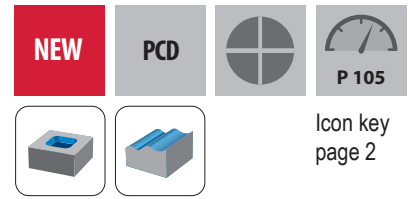


EDP	Dimensions							Price
	D	R	L	l	l1	d1	d	
PCD484-2362	6	0,2	150	8	30	5.8	6	£204.24
PCD484-3150	8	0,2	150	10	40	7.8	8	£204.24
PCD484-3937	10	0,2	150	12	45	9.8	10	£220.20
PCD484-4724	12	0,2	150	12	45	11.8	12	£231.03

⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
				⊙							⊙	⊙

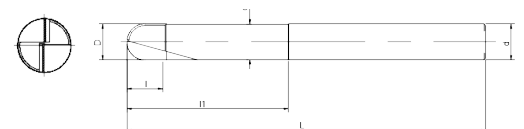
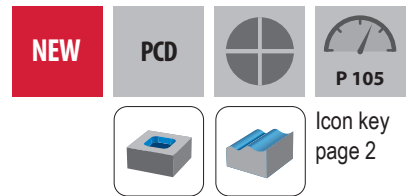
- ▶ 2 flutes, long, ball end, for graphite & CFRP
- ▶ Shank : NS (without flat)
- ▶ Material : PCD
- ▶ Surface treatment : Bright



EDP	Dimensions						Price
	D	L	l	l1	d1	d	
PCD402-1181-BN	3	75	3	15	2,8	6	£164.28
PCD402-1575-BN	4	75	4	20	3,8	6	£164.28
PCD402-1968-BN	5	75	5	25	4,8	6	£164.28
PCD402-2362-BN	6	100	6	30	5,8	6	£170.53
PCD402-3150-BN	8	100	8	40	7,8	8	£185.89
PCD402-3937-BN	10	100	10	45	9,8	10	£203.37
PCD402-4724-BN	12	100	12	45	11,8	12	£207.75

HYP-LS-EBD-PCD

- ▶ 2 flutes, extra long, ball end, for graphite and CFRP
- ▶ Shank : NS (without flat)
- ▶ Material : PCD
- ▶ Surface treatment : Bright



EDP	Dimensions						Price
	D	L	l	l1	d1	d	
PCD484-2362-BN	6	150	8	30	5.8	6	£205.29
PCD484-3150-BN	8	150	10	40	7.8	8	£205.29
PCD484-3937-BN	10	150	12	45	9.8	10	£220.20
PCD484-4724-BN	12	150	12	45	11.8	12	£231.03

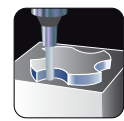
⊙ EXCELLENT ○ GOOD

Work Material												
C<0,2%	0,25<C<0,4%	C>0,45%	Alloy Steels	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	Stainless	Tool Steel	SC	Cast Iron	Ductile
Copper	Brass	BsC	PB	Aluminium	Cast Al	MC	Zinc Alloy	Titanium	Ni Alloys	Plastic	Graphite	CFRP
				⊙							⊙	⊙

MILLING CONDITIONS

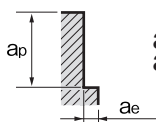
2 flute and 3 flute carbide end mill (see notes below for long series & coated)

SIDE MILLING



HYP-EDS,CR-EDS,EDL,EDXL,ETS,CR-ETS												
Aluminium			Cast Iron		Mild Steels Carbon Steels		Pre-hardened Steels Die & Alloy Steels				Hardened Steels	
			< 180 HB		< 180 HB		< 30 HRC		< 40 HRC		< 50 HRC	
Vc	100 ~ 120 m/min		30 ~ 45 m/min		30 ~ 45 m/min		25 ~ 35 m/min		25 ~ 35 m/min		15 m/min	
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
1	31,500	450	14,000	175	11,000	85	8,000	60	8,000	35	4,800	14
1.5	21,200	450	9,500	175	7,500	85	5,300	60	5,400	35	3,200	14
2	16,000	450	7,100	250	5,500	85	4,000	60	4,000	35	2,400	14
3	12,500	450	4,750	300	4,500	150	3,550	120	3,150	45	1,600	25
4	9,500	475	3,550	300	3,550	175	2,650	120	2,360	45	1,200	25
5	7,500	475	2,800	300	2,800	200	2,120	125	1,900	45	950	25
6	6,300	475	2,360	300	2,360	200	1,700	125	1,600	45	800	25
8	4,750	500	1,800	300	1,800	200	1,320	125	1,180	45	600	25
10	3,750	500	1,400	315	1,400	225	1,060	125	950	45	480	25
12	3,150	560	1,180	315	1,180	225	850	125	800	45	400	25
16	2,360	560	900	375	900	250	670	140	600	45	300	25
20	1,900	560	710	375	710	250	530	150	475	45	240	25
25	1,500	500	560	375	560	250	425	140	375	35	190	20

Maximum depth of cut

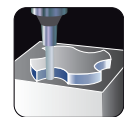


$$a_p = 1.5D$$

$$a_e = 0.1D$$

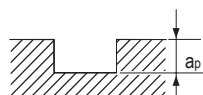
- (1) Reduce speeds & feeds 20-30% for HYP-EDL (Long series).
- (2) Reduce speeds & feeds 40-50% for HYP-EDXL. (Extra long series).
- (3) Increase speeds & feeds 20-30% for HYP-EDS-XCEED (coated).
- (4) Column for Hardened Steels (40-50 HRC) is for XCEED coated tools only.
- (5) Increase speeds & feeds 20-30% for HYP-ETS.
- (6) Increase speeds & feeds 20-40% for HYP-ETS-XCEED (coated).

SLOTING



HYP-EDS,CR-EDS,EDL,EDXL,ETS,CR-ETS												
Aluminium			Cast Iron		Mild Steels Carbon Steels		Pre-hardened Steels Die & Alloy Steels				Hardened Steels	
			< 180 HB		< 180 HB		< 30 HRC		< 40 HRC		< 50 HRC	
Vc	100 ~ 120 m/min		30 ~ 45 m/min		30 ~ 45 m/min		25 ~ 35 m/min		25 ~ 35 m/min		15 m/min	
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
1	31,500	200	14,000	140	12,500	75	7,500	30	7,000	15	4,800	8
1.5	21,200	200	9,500	140	8,500	90	6,500	35	5,000	20	3,200	11
2	16,000	300	7,100	150	6,300	100	5,000	60	4,000	30	2,400	16
3	11,200	300	4,750	160	4,250	100	3,200	80	2,600	30	1,600	16
4	8,000	300	3,550	160	3,150	100	2,400	80	2,000	30	1,200	16
5	6,300	300	2,800	160	2,500	100	2,000	80	1,600	30	950	16
6	5,300	300	2,360	200	2,120	100	1,600	80	1,300	30	800	16
8	4,000	300	1,800	236	1,600	100	1,200	80	1,000	30	600	16
10	3,150	300	1,400	236	1,250	100	1,000	80	800	30	480	16
12	2,650	300	1,180	236	1,060	100	820	80	700	30	400	16
16	2,000	300	900	236	800	100	640	85	500	37	300	12
20	1,600	300	710	236	630	100	500	85	400	37	240	10
25	1,250	300	560	236	500	100	400	85	320	37	190	8

Maximum depth of cut

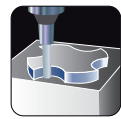


D < 2	0.5D
2 < D	1D

- (1) Reduce speeds & feeds 20-30% for HYP-EDL (Long series).
- (2) Reduce speeds & feeds 40-50% for HYP-EDXL. (Extra long series).
- (3) Increase speeds & feeds 20-30% for HYP-EDS-XCEED (coated).
- (4) Column for Hardened Steels (40-50 HRC) is for XCEED coated tools only.
- (5) Increase speeds & feeds 20-30% for HYP-ETS.
- (6) Increase speeds & feeds 20-40% for HYP-ETS-XCEED (coated).

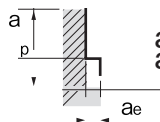
4 flute carbide end mill (see notes below for long series & coated)

SIDE MILLING



HYP-EMS, CR-EMS, EML, EMXL												
Vc	Aluminium		Cast Iron		Mild Steels Carbon Steels		Pre-hardened Steels Die & Alloy Steels				Hardened Steels	
			< 180 HB		< 180 HB		< 30 HRC		< 40 HRC		< 50 HRC	
	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
	100 ~ 120 m/min		30 ~ 45 m/min		30 ~ 45 m/min		25 ~ 35 m/min		25 ~ 35 m/min		15 m/min	
Ø												
1	31,500	630	14,000	245	11,000	120	8,000	85	8,000	50	4,800	20
1.5	21,200	630	9,500	245	7,500	120	5,300	85	5,400	50	3,200	20
2	16,000	630	7,100	350	5,500	120	4,000	85	4,000	50	2,400	20
3	12,500	630	4,750	420	4,500	210	3,550	170	3,150	63	1,600	35
4	9,500	665	3,550	420	3,550	245	2,650	170	2,360	63	1,200	35
5	7,500	665	2,800	420	2,800	280	2,120	170	1,900	63	950	35
6	6,300	665	2,360	420	2,360	280	1,700	170	1,600	63	800	35
8	4,750	700	1,800	420	1,800	280	1,320	170	1,180	63	600	35
10	3,750	700	1,400	440	1,400	310	1,060	170	950	63	480	35
12	3,150	780	1,180	440	1,180	310	850	170	800	63	400	35
16	2,360	780	900	525	900	350	670	200	600	63	300	35
20	1,900	780	710	525	710	350	530	200	475	63	240	35
25	1,500	700	560	525	560	350	425	200	375	50	190	28

Maximum depth of cut

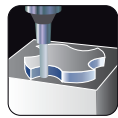


$$a_p = 1.5D$$

$$a_e = 0.1D$$

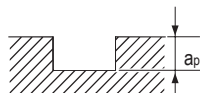
- (1) Reduce speeds & feeds 20-30% for HYP-EML (Long series).
- (2) Reduce speeds & feeds 40-50% for HYP-EMXL. (Extra long series).
- (3) Increase speeds & feeds 20-30% for HYP-EMS-XCEED (coated).
- (4) Column for Hardened Steels (40-50 HRC) is for XCEED coated tools only.

SLOTING



HYP-EMS, CR-EMS, EML												
Vc	Aluminium		Cast Iron		Mild Steels Carbon Steels		Pre-hardened Steels Die & Alloy Steels				Hardened Steels	
			< 180 HB		< 180 HB		< 30 HRC		< 40 HRC		< 50 HRC	
	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
	100 ~ 120 m/min		30 ~ 45 m/min		30 ~ 45 m/min		25 ~ 35 m/min		25 ~ 35 m/min		15 m/min	
Ø												
1	31,500	280	14,000	200	12,500	105	7,500	42	7,000	20	4,800	10
1.5	21,200	280	9,500	200	8,500	125	6,500	50	5,000	28	3,200	15
2	16,000	420	7,100	210	6,300	140	5,000	85	4,000	42	2,400	22
3	11,200	420	4,750	225	4,250	140	3,200	110	2,600	42	1,600	22
4	8,000	420	3,550	225	3,150	140	2,400	110	2,000	42	1,200	22
5	6,300	420	2,800	225	2,500	140	2,000	110	1,600	42	950	22
6	5,300	420	2,360	280	2,120	140	1,600	110	1,300	42	800	22
8	4,000	420	1,800	330	1,600	140	1,200	110	1,000	42	600	22
10	3,150	420	1,400	330	1,250	140	1,000	110	800	42	480	22
12	2,650	420	1,180	330	1,060	140	820	110	700	42	400	22
16	2,000	420	900	330	800	140	640	120	500	50	300	17
20	1,600	420	710	330	630	140	500	120	400	50	240	14
25	1,250	420	560	330	500	140	400	120	320	50	190	11

Maximum depth of cut



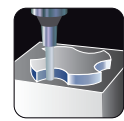
$D < 2$	0.3D
$2 < D$	0.5D

- (1) Reduce speeds & feeds 20-30% for HYP-EML (Long series).
- (2) Reduce speeds & feeds 40-50% for HYP-EMXL. (Extra long series).
- (3) Increase speeds & feeds 20-30% for HYP-EMS-XCEED (coated).
- (4) Column for Hardened Steels (40-50 HRC) is for XCEED coated tools only.
- (5) Slotting is not recommended for HYP-EMXL.

MILLING CONDITIONS

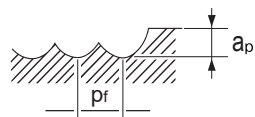
2 flute ball nose carbide end mill (see notes below for long series & coated)

PROFILING



		HYP-EDB,EBDL,EBDXL											
		Aluminium		Cast Iron		Mild Steels Carbon Steels		Pre-hardened Steels Die & Alloy Steels				Hardened Steels	
				< 180 HB		< 180 HB		< 30 HRC		< 40 HRC		< 50 HRC	
Vc	100 m/min		35 m/min		35 m/min		25 m/min		20 m/min		15 m/min		
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	
1	32,000	190	11,000	90	11,000	80	8,000	45	6,400	26	4,800	24	
2	16,000	190	5,600	90	5,600	80	4,000	45	3,200	26	2,387	24	
3	10,000	190	3,700	100	3,700	90	2,600	50	2,100	35	2,000	30	
4	8,000	190	2,800	100	2,800	90	2,000	50	1,600	35	1,195	30	
5	6,400	190	2,200	100	2,200	90	1,600	50	1,300	35	955	30	
6	5,300	190	1,900	100	1,900	90	1,320	50	1,000	35	800	30	
8	4,000	220	1,400	100	1,400	90	1,000	50	800	35	600	30	
10	3,200	220	1,100	100	1,100	90	800	50	640	35	475	30	
12	2,600	220	930	100	930	90	660	50	530	35	400	30	
16	2,000	220	700	100	700	90	500	50	400	35	300	30	
20	1,600	220	560	100	560	90	400	50	320	35	240	30	
25	1,200	220	450	100	450	90	320	50	250	35	190	30	

Maximum depth of cut



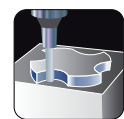
$$a_p = 0.3D$$

$$p_f = 0.7D$$

- (1) Reduce speeds & feeds 20-30% for HYP-EBDL (Long series).
- (2) Reduce speeds & feeds 40-50% for HYP-EBDXL. (Extra long series).
- (3) Increase speeds & feeds 20-30% for HYP-EBD-XCEED (coated).
- (4) Column for Hardened Steels (40-50 HRC) is for XCEED coated tools only.

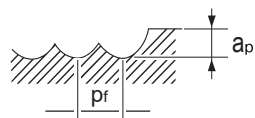
4 flute ball nose carbide end mill (see notes below for long series & coated)

PROFILING



		HYP-EBM,EBML,EBMXL											
		Aluminium		Cast Iron		Mild Steels Carbon Steels		Pre-hardened Steels Die & Alloy Steels				Hardened Steels	
				< 180 HB		< 180 HB		< 30 HRC		< 40 HRC		< 50 HRC	
Vc	100 m/min		35 m/min		35 m/min		25 m/min		20 m/min		15 m/min		
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	
1	32,000	226	11,000	126	11,000	112	8,000	63	6,400	43	4,800	34	
2	16,000	226	5,600	126	5,600	112	4,000	63	3,200	43	2,387	34	
3	10,000	226	3,700	140	3,700	126	2,600	70	2,100	50	2,000	42	
4	8,000	226	2,800	140	2,800	126	2,000	70	1,600	50	1,195	42	
5	6,400	226	2,200	140	2,200	126	1,600	70	1,300	50	955	42	
6	5,300	226	1,900	140	1,900	126	1,320	70	1,000	50	800	42	
8	4,000	308	1,400	140	1,400	126	1,000	70	800	50	600	42	
10	3,200	308	1,100	140	1,100	126	800	70	640	50	475	42	
12	2,600	308	930	140	930	126	660	70	530	50	400	42	
16	2,000	308	700	140	700	126	500	70	400	50	300	42	
20	1,600	308	560	140	560	126	400	70	320	50	240	42	
25	1,200	308	450	140	450	126	320	70	250	50	190	42	

Maximum depth of cut



$$a_p = 0.3D$$

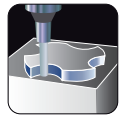
$$p_f = 0.7D$$

- (1) Reduce speeds & feeds 20-30% for HYP-EBML (Long series).
- (2) Reduce speeds & feeds 40-50% for HYP-EBMXL. (Extra long series).
- (3) Increase speeds & feeds 20-30% for HYP-EBM-XCEED (coated).
- (4) Column for Hardened Steels (40-50 HRC) is for XCEED coated tools only.

MILLING CONDITIONS

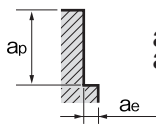
High performance 4 flute carbide roughing end mill

PROFILING



		HYP-HP-WRESF									
		Cast Iron		Mild Steels Carbon Steels		Pre-hardened Steels / Die & Alloy Steels				Hardened Steels / SUS 304	
				< 180 HB		< 30 HRC		< 38 HRC		< 45 HRC	
Vc		80 m/min		80 m/min		70 m/min		55 m/min		m/min	
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	
6	4,200	585	4,200	585	3,700	370	2,900	230	2,650	210	
8	3,150	565	3,150	565	2,750	350	2,150	230	1,950	210	
10	2,500	500	2,500	500	2,200	350	1,750	230	1,550	210	
12	2,100	500	2,100	500	1,850	330	1,450	230	1,300	210	
16	1,550	400	1,550	400	1,350	320	1,050	230	995	210	
20	1,250	375	1,250	375	1,100	320	875	240	795	220	
25	870	300	870	300	830	295	640	220	575	200	

Maximum
depth of cut



$$a_p = 1.5D$$

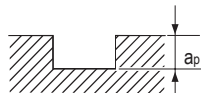
$$a_e = 0.1D$$

SLOTING



		HYP-HP-WRESF									
		Cast Iron		Mild Steels Carbon Steels		Pre-hardened Steels / Die & Alloy Steels				Hardened Steels / SUS 304	
				< 180 HB		< 30 HRC		< 38 HRC		< 45 HRC	
Vc		m/min		m/min		m/min		m/min		m/min	
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	
6	3,150	315	3,150	315	2,650	265	2,300	180	2,100	165	
8	2,350	300	2,350	300	1,950	250	1,750	175	1,550	155	
10	1,900	300	1,900	300	1,550	245	1,400	165	1,250	150	
12	1,550	280	1,550	280	1,300	235	1,150	160	1,050	145	
16	1,150	280	1,150	280	995	235	875	140	795	125	
20	955	280	955	280	795	235	700	140	635	125	
25	700	245	700	245	640	225	510	125	460	115	

Maximum
depth of cut



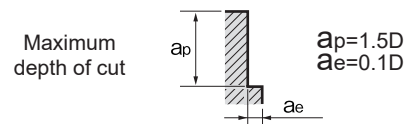
D < 2	0.3D
2 < D	0.5D

MILLING CONDITIONS

4 flute high helix carbide end mill

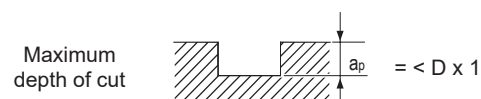
SIDE MILLING

												HYP-EHS, CR-EHS	
Vc	Cast Iron		Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti (Annealed)		Hardened Steels Titanium Alloys Treated & aged		Hardened Steels Stainless Steels Nickel Base Alloys		Aluminium Alloys		
			< 220 HB		< 30 HRC		< 38 HRC		< 45 HRC				
	102 m/min		120 m/min		96 m/min		72 m/min		48 m/min		132 m/min		
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	
4	8,160	840	9,600	1,800	7,680	1,560	5,760	480	3,840	288	10,560	1,320	
6	5,400	960	6,360	2,040	5,040	1,800	3,840	480	2,520	312	6,960	1,560	
8	4,080	840	4,800	1,920	3,840	1,680	2,880	744	1,920	492	5,280	1,440	
10	3,240	816	3,840	1,680	3,000	1,560	2,280	720	1,560	492	4,200	1,320	
12	2,760	792	3,240	1,680	2,520	1,440	1,920	612	1,260	420	3,480	1,200	
16	2,040	660	2,400	1,320	1,920	1,140	1,440	468	960	396	2,640	1,080	
20	1,620	540	2,160	1,080	1,500	900	1,140	384	780	312	2,100	960	



SLOTTING

												HYP-EHS, CR-EHS	
Vc	Cast Iron		Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti (Annealed)		Hardened Steels Titanium Alloys Treated & aged		Hardened Steels Stainless Steels Nickel Base Alloys		Aluminium Alloys		
			< 220 HB		< 30 HRC		< 38 HRC		< 45 HRC				
	72 m/min		108 m/min		90 m/min		60 m/min		35 m/min		120 m/min		
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	
4	5,760	480	8,640	756	7,200	540	4,800	348	2,880	204	9,548	1,080	
6	3,840	480	5,760	876	4,800	756	3,240	408	1,920	276	6,350	1,200	
8	2,880	744	4,320	792	3,600	696	2,400	408	1,440	276	4,775	1,140	
10	2,280	720	3,480	720	2,880	564	1,920	372	1,140	252	3,800	1,080	
12	1,920	612	2,880	696	2,400	540	1,560	348	960	240	3,200	960	
16	1,440	468	2,160	576	1,800	475	1,200	264	720	216	2,400	840	
20	1,140	384	1,680	504	1,440	384	960	216	576	168	1,900	720	



$= < D \times 0.5$

SLOTTING



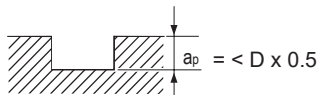
HYP-ACE-STUB / CR-ACE-STUB / DLC

Aluminium Alloys

A6061, A7075

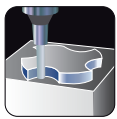
Vc		365 m/min		
Ø	Speed (min ⁻¹)	Fz (mm)	Feed (mm/min.)	
3	38,700	0.03	3,810	
4	29,000	0.05	4,590	
6	19,400	0.09	5,280	
8	14,500	0.13	5,490	
10	11,600	0.16	5,550	
12	9,700	0.19	5,540	
16	7,300	0.24	5,360	
20	5,800	0.29	5,040	
25	4,600	0.33	4,580	

Maximum depth of cut



(1) For side milling increase feeds 20-50%

SLOTTING



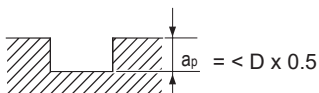
HYP-ACE-REGULAR / CR-ACE-REG / DLC

Aluminium Alloys

A6061, A7075

Vc		300 m/min		
Ø	Speed (min ⁻¹)	Fz (mm)	Feed (mm/min.)	
3	31,800	0.03	3,130	
4	23,900	0.05	3,780	
6	15,900	0.09	4,330	
8	11,900	0.13	4,510	
10	9,500	0.16	4,550	
12	8,000	0.19	4,570	
16	6,000	0.24	4,410	
20	4,800	0.29	4,170	
25	3,800	0.33	3,790	

Maximum depth of cut



(1) For side milling increase feeds 20-50%

MILLING CONDITIONS

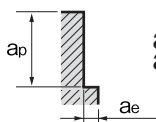
Multi-flute carbide end mill

SIDE MILLING

HYP-ROCKET-MILL, LS-ROCKET-MILL

Vc	Mild Steels Cast Iron		Alloy Steels Tool Steels		Hardened Steels Tool Steels				Titanium Alloy		Nickel Base Alloys	
	< 25 HRC		< 45 HRC		< 55 HRC		< 60 HRC		< 40 HRC		< 45 HRC	
	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
	132 m/min		72 m/min		39 m/min		22 m/min		66 m/min		20 m/min	
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
3	11,400	1,800	6,360	480	3,240	192	2,280	120	5,040	840	1,680	54
4	8,640	1,800	4,800	480	2,640	240	1,800	120	3,840	900	1,260	66
5	6,840	1,560	3,840	480	2,160	264	1,560	120	3,000	900	984	84
6	6,360	3,120	3,480	1,020	1,920	360	1,320	192	2,520	1,080	840	108
8	4,800	2,880	2,640	1,020	1,440	360	996	180	1,920	1,080	624	108
10	3,840	2,520	2,160	1,020	1,152	336	804	180	1,560	960	480	108
12	3,480	2,520	1,920	924	960	336	672	156	1,260	900	408	96
16	2,640	1,920	1,440	696	720	264	528	120	960	840	312	84
20	2,160	1,560	1,140	552	576	192	420	102	780	720	240	84
25	1,500	1,440	900	570	450	216	300	96	720	600	216	72

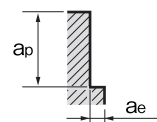
Maximum depth of cut



$$a_p = 1.5D$$

$$a_e = 0.1D$$

Maximum depth of cut



$$a_p = 1.5D$$

$$a_e = 0.05D$$

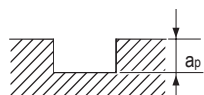
1 Flute carbide end mill

SLOTTING

HYP-F1

Vc	Aluminium		Plastics	
	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
3	40,000	2,500	20,000	2,000
4	35,000	2,500	20,000	2,000
5	30,000	3,000	20,000	3,000
6	25,000	3,000	20,000	3,000
8	25,000	3,000	20,000	3,000
10	22,300	3,000	16,000	3,000
12	18,600	3,000	13,500	3,000

Maximum depth of cut



$$a_p = < D \times 0.5$$

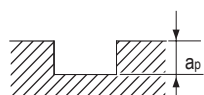
2 Flute carbide end mill

COUNTERBORING

HYP-ZDS

Vc	GG, S55C SS400, GG25 ~750N/mm ²		SCM SKS, SKT SKD		NAK55 HPMI, SKT SKD		Stainless Steel Sus 304 SKD		Aluminium Alloy A7075		Aluminium Alloy Casting < Si 13%	
	< 30 HRC		< 38 HRC		< 45 HRC		80~200 m/min		40~150 m/min			
	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
	60~80 m/min		40~60 m/min		30~50 m/min		20~40 m/min		80~200 m/min		40~150 m/min	
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
4	5.950	360	4.950	295	4.000	240	3.200	155	12.500	915	9.550	575
5	4.800	360	3.950	295	3.200	240	2.550	155	10.000	915	7.650	575
6	4.000	360	3.300	295	2.700	240	2.150	155	8.400	915	6.400	575
7	3.400	360	2.800	295	2.300	240	1.850	155	7.200	915	5.500	575
8	3.000	360	2.450	295	2.000	240	1.600	155	6.350	915	4.750	575
9	2.650	360	2.200	295	1.800	240	1.450	155	5.600	915	4.200	575
10	2.400	360	2.000	295	1.600	240	1.300	155	5.000	915	3.800	575

Maximum depth of cut



$$a_p = < D \times 0.5$$

MILLING CONDITIONS

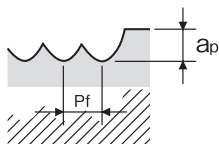
4 flute square end / ball nose diamond coated carbide end mills

		HYP-EMS-DIAMOND / EBM DIAMOND					
		Graphite		Green Ceramic Thermoset Plastic		Fibre Filler Plastic	
Vc	50 ~ 900 m/min		25 ~ 420 m/min		40 ~ 240 m/min		
Ø	Speed (min ⁻¹)	Fz (mm)	Speed (min ⁻¹)	Fz (mm)	Speed (min ⁻¹)	Fz (mm)	
2	40,000	0.025 ~ 0.05	20,000	0.025 ~ 0.05	11,000	0.025 ~ 0.05	
3	40,000	0.025 ~ 0.05	16,000	0.025 ~ 0.05	10,500	0.025 ~ 0.05	
4	40,000	0.025 ~ 0.05	16,000	0.025 ~ 0.05	10,500	0.025 ~ 0.05	
5	40,000	0.025 ~ 0.05	15,000	0.025 ~ 0.05	10,000	0.025 ~ 0.05	
6	36,000	0.050 ~ 0.10	12,500	0.050 ~ 0.10	9,000	0.040 ~ 0.08	
8	32,000	0.050 ~ 0.10	12,000	0.050 ~ 0.10	8,000	0.050 ~ 0.10	
10	28,000	0.075 ~ 0.12	11,500	0.075 ~ 0.12	7,000	0.075 ~ 0.12	
12	24,000	0.075 ~ 0.12	11,000	0.075 ~ 0.12	6,000	0.075 ~ 0.12	
16	19,000	0.075 ~ 0.12	8,750	0.075 ~ 0.12	4,750	0.075 ~ 0.12	
20	15,000	0.075 ~ 0.12	7,000	0.075 ~ 0.12	3,800	0.075 ~ 0.12	

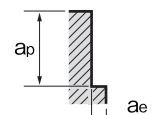
- (1) For high speed / feed milling reduce the depth of cut.
 (2) Reduce speeds & feeds 30% for slotting > 0.5D.

		HYP-EMS-DIAMOND / EBM DIAMOND					
		Aluminium Alloys		MMC		Copper Alloys	
Vc	50 ~ 2400 m/min		30 ~ 225 m/min		100 ~ 2000 m/min		
Ø	Speed (min ⁻¹)	Fz (mm)	Speed (min ⁻¹)	Fz (mm)	Speed (min ⁻¹)	Fz (mm)	
2	25,000	0.025 ~ 0.05	20,000	0.025 ~ 0.05	25,000	0.025 ~ 0.05	
3	24,000	0.025 ~ 0.05	16,000	0.025 ~ 0.05	24,000	0.025 ~ 0.05	
4	20,000	0.025 ~ 0.05	16,000	0.025 ~ 0.05	20,000	0.025 ~ 0.05	
5	16,000	0.025 ~ 0.05	15,000	0.025 ~ 0.05	16,000	0.025 ~ 0.05	
6	12,000	0.040 ~ 0.08	12,000	0.040 ~ 0.08	12,000	0.040 ~ 0.08	
8	9,500	0.050 ~ 0.10	9,500	0.050 ~ 0.10	9,500	0.050 ~ 0.10	
10	8,000	0.075 ~ 0.12	8,000	0.075 ~ 0.12	8,000	0.075 ~ 0.12	
12	6,000	0.075 ~ 0.12	6,000	0.075 ~ 0.12	6,000	0.075 ~ 0.12	
16	4,750	0.075 ~ 0.12	4,750	0.075 ~ 0.12	4,750	0.075 ~ 0.12	
20	3,900	0.075 ~ 0.12	3,900	0.075 ~ 0.12	3,900	0.075 ~ 0.12	

Dia	ap	pf
D < 3	0.02D	0.05D
D > 3	0.1D	0.2D



Dia	ap	ae
D < 3	0.5D	0.05D
D > 3	1D	0.1D

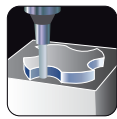


MILLING CONDITIONS

2 flute and 3 flute carbide end mills for Aluminium (including corner radius versions)

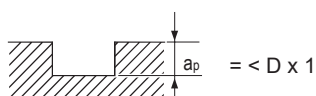
SLOTTING

HYP-EDS-55 / EDL-55 / ETS-55 / ETL-55 / AL-EDS / EDL / LS-EDS



Aluminium Alloys			Copper Alloys	
Vc	150 m/min		75 m/min	
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
6	7,950	630	3,950	310
8	5,950	665	2,950	350
10	4,750	745	2,350	365
12	3,950	790	1,950	390
16	2,950	795	1,450	390
20	2,350	785	1,150	385
25	1,900	785	950	385

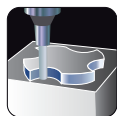
Maximum depth of cut



- (1) Reduce speeds & feeds 20-30% for HYP-AL-EDL / HYP-EDL-55 (Long series) and HYP-AL-LS-EDS (Long with neck).
- (2) Increase speeds & feeds 30-40% for HYP-ETS-55.

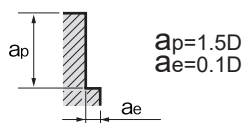
SIDE MILLING

HYP-EDS-55 / EDL-55 / ETS-55 / ETL-55 / AL-EDS / EDL / LS-EDS



Aluminium Alloys			Copper Alloys	
Vc	200 m/min		75 m/min	
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
6	10,500	830	3,950	310
8	7,950	890	2,950	350
10	6,350	995	2,350	365
12	5,300	1,050	1,950	390
16	3,950	1,050	1,450	390
20	3,150	1,050	1,150	385
25	2,250	1,050	950	385

Maximum depth of cut

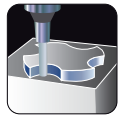


- (1) Reduce speeds & feeds 20-30% for HYP-AL-EDL / HYP-EDL-55 (Long series) and HYP-AL-LS-EDS (Long with neck).
- (2) Increase speeds & feeds 30-40% for HYP-ETS-55.

MILLING CONDITIONS

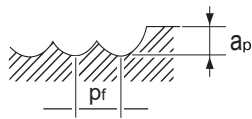
2 flute ball end carbide end mill for Aluminium

PROFILING



Aluminium Alloys			HYP-AL-LS-EBD		
A6061, A7075			Copper Alloy		
Vc	200 m/min		150 m/min		
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	
3	21,200	1,550	15,900	1,150	
4	15,900	1,550	11,900	1,150	
5	12,750	1,575	9,500	1,150	
6	10,600	1,600	7,950	1,150	
8	7,950	1,950	5,950	1,450	
10	6,350	1,750	4,750	1,300	
12	5,300	1,650	3,950	1,200	

Maximum depth of cut

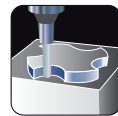


$$a_p = 0.1D$$

$$p_f = 0.2D$$

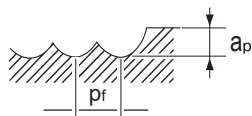
2 flute ball end carbide end mill for difficult materials

PROFILING



Cast Iron			Mild Steels		Tool Steels		HYP-Ti-EBD					
Cast Iron			Carbon Steels		Ti (Annealed)		Pre-hardened / Die / Alloy Steels		Hardened Steels			
			< 225 HB		< 30 HRC		Titanium (treated & aged) Inconel					
							< 38 HRC		< 45 HRC		< 55 HRC	
Vc	210 m/min		168 m/min		138 m/min		108 m/min		96 m/min		84 m/min	
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
3	21,212	1,350	17,244	1,100	14,475	906	11,628	588	10,188	432	8,736	312
4	16,740	1,350	13,800	1,100	11,560	906	9,228	636	8,064	528	6,910	384
5	13,320	1,512	10,656	1,230	8,890	918	7,068	642	6,228	534	5,316	408
6	10,944	1,572	8,736	1,280	7,280	990	5,770	690	5,076	576	4,332	432
8	8,652	1,860	6,912	1,500	5,740	1,128	4,570	792	3,996	648	3,420	462
10	6,648	1,704	5,316	1,360	4,420	1,056	3,500	744	3,072	618	2,640	474
12	4,000	1,554	4,296	1,240	3,610	990	2,870	696	2,508	594	2,120	438

Maximum depth of cut



$$a_p = 0.1D$$

$$p_f = 0.2D$$

$$a_p = 0.05D$$

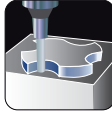
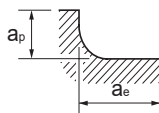
$$p_f = 0.1D$$

MILLING CONDITIONS

4 flute variable lead ball nose carbide endmill.

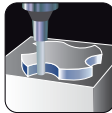
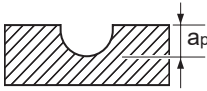
SIDE MILLING

HYP-VG4-EBM

	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels		300 Stainless Steels Hardened Steel		PH Stainless Steels Hardened Steel		Hardened Steel		Titanium Alloys		Nickel Base Alloys	
	< 25 HRC		< 30 HRC		< 35 HRC		< 45 HRC		< 50 HRC		< 35 HRC		< 35 HRC	
Vc	120 ~ 150 m/min		90 ~ 120 m/min		60 ~ 110 m/min		60 ~ 75 m/min		50 ~ 70 m/min		50 ~ 75 m/min		30 ~ 45 m/min	
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
3	14,300	1,100	11,100	640	9,000	480	7,200	380	6,400	360	6,600	330	4,000	250
4	10,700	1,160	8,400	720	6,800	530	5,400	420	4,800	410	4,900	340	3,000	290
5	8,600	1,170	6,700	780	5,400	520	4,300	420	3,800	420	3,900	350	2,400	290
6	7,200	1,210	5,600	810	4,500	550	3,600	440	3,200	450	3,300	380	2,000	310
8	5,400	1,180	4,200	770	3,400	530	2,700	430	2,400	410	2,500	370	1,500	290
10	4,300	1,140	3,300	750	2,700	520	2,200	420	1,900	400	2,000	350	1,200	290
12	3,600	1,140	2,800	730	2,300	510	1,800	400	1,600	400	1,600	350	1,000	280
Maximum depth of cut					$a_p=1.5D$ $a_e=0.5D$		$a_p=1.25D$ $a_e=0.4D$		$a_p=1.25D$ $a_e=0.2D$		$a_p=1.25D$ $a_e=0.4D$		$a_p=1D$ $a_e=0.2D$	

SLOTING

HYP-VG4-EBM

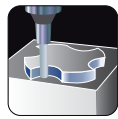
	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels		300 Stainless Steels Hardened Steel		PH Stainless Steels Hardened Steel		Hardened Steel		Titanium Alloys		Nickel Base Alloys	
	< 25 HRC		< 30 HRC		< 35 HRC		< 45 HRC		< 50 HRC		< 35 HRC		< 35 HRC	
Vc	100 ~ 120 m/min		75 ~ 100 m/min		50 ~ 85 m/min		50 ~ 60 m/min		45 ~ 55 m/min		40 ~ 60 m/min		20 ~ 30 m/min	
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
3	11,700	900	9300	540	7200	390	5800	270	5300	300	5300	270	2700	170
4	8,800	960	7000	600	5400	440	4400	290	4000	340	4000	290	2000	190
5	7,000	950	5600	640	4300	430	3500	310	3200	370	3200	300	1600	190
6	5,800	970	4700	680	3600	460	2900	330	2700	380	2700	310	1300	200
8	4,400	960	3500	640	2700	440	2200	310	2000	340	2000	290	1000	190
10	3,500	920	2800	620	2100	410	1800	310	1600	340	1600	300	800	190
12	2,900	920	2300	600	1800	410	1500	300	1300	330	1300	290	700	200
Maximum depth of cut					$= < D \times 1$		$= < D \times 0.75$		$= < D \times 0.5$		$= < D \times 0.5$		$= < D \times 0.2$	

MILLING CONDITIONS

High feed side milling carbide end mill

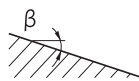
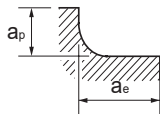
HIGH FEED SIDE MILLING

HYP-HS-CRE



Vc	Cast Iron		SKT / SKD NAK55 / HPM1		SUS30 / SKD NAK80 / HPM50		Hardened Steels			
			< 38 HRC		< 45 HRC		< 55 HRC		< 60HRC	
	m/min		m/min		m/min		m/min		m/min	
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
6 X R 1,50	5,300	6,300	4,250	4,600	3,700	4,000	2,650	2,600	1,600	1,050
8 X R 2,00	4,000	6,300	3,200	4,600	2,800	4,000	2,000	2,600	1,200	1,050
10 X R 2,00	3,200	6,300	2,550	4,600	2,250	4,000	1,600	2,600	955	1,050
12 X R 3,00	2,650	6,300	2,100	4,600	1,850	4,000	1,350	2,600	795	1,050

Maximum depth of cut



ap	ae
0.1 x R	0.3D

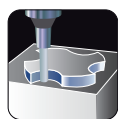
Dia	ap	ae
R ≤ 2	0.1 x R	0.3D
2 < R	0.2 mm	0.3D

Dia	ap	ae
R ≤ 2	0.05 x R	0.3D
2 < R	0.1 mm	0.3D

2 flute ball nose carbide end mill (low torque / better surface finish / longer life)

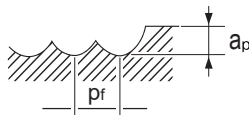
PROFILING

HYP-SB-EBD



Vc	Copper Alloy				Pre Hardened / Hardened Steels											
					< 35 HRC				< 42 HRC				< 55 HRC			
	300 m/min				280 m/min				260 m/min				240 m/min			
Ø	Speed (min ⁻¹)	Feed (mm/min.)	ap (mm)	pf (mm)	Speed (min ⁻¹)	Feed (mm/min.)	ap (mm)	pf (mm)	Speed (min ⁻¹)	Feed (mm/min.)	ap (mm)	pf (mm)	Speed (min ⁻¹)	Feed (mm/min.)	ap (mm)	pf (mm)
3	31,847	2,866	0.15	0.60	29,724	2,675	0.15	0.60	27,601	2,484	0.15	0.60	25,478	2,293	0.15	0.60
4	23,885	2,866	0.20	0.80	22,293	2,675	0.20	0.80	20,701	2,484	0.20	0.80	19,108	2,293	0.20	0.80
5	19,108	2,866	0.25	1.00	17,834	2,675	0.25	1.00	16,561	2,484	0.25	1.00	15,287	2,293	0.25	1.00
6	15,924	2,866	0.30	1.20	14,862	2,675	0.30	1.20	13,800	2,484	0.30	1.20	12,739	2,293	0.30	1.20
8	11,943	2,866	0.40	1.60	11,146	2,675	0.40	1.60	10,350	2,484	0.40	1.60	9,554	2,293	0.40	1.60
10	9,664	2,866	0.50	2.00	8,917	2,675	0.50	2.00	8,280	2,484	0.50	2.00	7,643	2,293	0.50	2.00
12	7,962	2,866	0.60	2.40	7,431	2,675	0.60	2.40	6,900	2,484	0.60	2.40	6,369	2,293	0.60	2.40

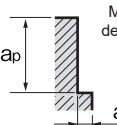
Maximum depth of cut



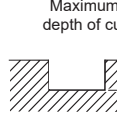
MILLING CONDITIONS

3 flute corner radius endmill for pocket milling

SIDE MILLING

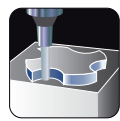
		HYP-AL-PKE, AL-PKE-DLC											
		Aluminium alloy A7075				Aluminium Alloy Casting Die Casting				Magnesium Alloy Copper Alloy			
		Regular Milling		High Speed Milling		Regular Milling		High Speed Milling		Regular Milling		High Speed Milling	
Vc		200 m/min		500 m/min		200 m/min		300 m/min		100 m/min		200 m/min	
Ø		Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
6		10600	1910	26550	4780	10600	1910	15900	2860	5300	950	10600	1910
8		7950	1910	19900	4780	7950	1910	11950	2870	4000	960	7950	1910
10		6350	1910	15900	4770	6350	1910	9550	2870	3200	960	6350	1910
12		5300	1910	13250	4770	5300	1910	7950	2860	2650	950	5300	1910
16		4000	1920	9950	4780	4000	1920	5950	2860	2000	960	4000	1920
 <p>Maximum depth of cut</p>		$a_p=1D$ $a_e=0.2D$		$a_p=1D$ $a_e=0.1D$		$a_p=1D$ $a_e=0.2D$		$a_p=1D$ $a_e=0.1D$		$a_p=1D$ $a_e=0.2D$		$a_p=1D$ $a_e=0.1D$	

SLOTING

		HYP-AL-PKE, AL-PKE-DLC											
		Aluminium alloy A7075				Aluminium Alloy Casting Die Casting				Magnesium Alloy Copper Alloy			
		Regular Milling		High Speed Milling		Regular Milling		High Speed Milling		Regular Milling		High Speed Milling	
Vc		200 m/min		500 m/min		200 m/min		300 m/min		100 m/min		200 m/min	
Ø		Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
6		10600	1270	26550	3190	10600	1270	15900	1910	5300	640	10600	1270
8		7950	1430	19900	3580	7950	1430	11950	2150	4000	720	7950	1430
10		6350	1520	15900	3820	6350	1520	9550	2290	3200	770	6350	1520
12		5300	1590	13250	3980	5300	1590	7950	2390	2650	800	5300	1590
16		4000	1440	9950	3580	4000	1440	5950	2140	2000	720	4000	1440
 <p>Maximum depth of cut</p>		$= < D \times 0.5$		$= < D \times 0.25$		$= < D \times 0.5$		$= < D \times 0.25$		$= < D \times 0.5$		$= < D \times 0.25$	

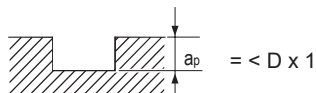
SLOTTING

HYP-VG4-EMS / LN-VG4-EMS



Vc	Low Carbon / Alloy / Tool Steels						Cast Iron		Stainless Steel		Titanium		Nickel Alloy		Aluminium Alloy	
			< 30 HRC		< 40 HRC		< 180 HB									
	100 m/min		90 m/min		80 m/min		100 m/min		70 m/min		60 m/min		30 m/min		150 m/min	
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
3	10600	760	9550	610	8500	510	10600	640	7450	480	6350	410	2100	170	15900	1270
4	7950	800	7150	660	6350	510	7950	640	5550	440	4750	380	1600	140	11950	1200
5	6350	840	5750	720	5100	610	6350	760	4450	390	3800	330	1250	130	9550	1260
6	5300	1060	4750	860	4250	680	5300	850	3700	370	3200	320	1050	130	7950	1590
8	4000	880	3600	720	3200	640	4000	800	2800	390	2400	340	800	130	5950	1430
10	3200	830	2850	680	2550	560	3200	700	2250	360	1900	300	650	130	4750	1330
12	2650	800	2400	670	2100	550	2650	690	1850	370	1600	320	550	120	4000	1200
16	2000	600	1800	500	1600	420	2000	520	1400	360	1200	310	400	90	3000	900
20	1600	510	1450	440	1250	350	1600	450	1100	310	950	270	300	70	2400	770

Maximum depth of cut



$a_p = 0.5$

- (1) The above milling conditions are guideline based on an overhang length of 3 X D
- (2) Reduce speeds & feeds 20-30% for HYP-LN-VG4-EMS (Long with neck).

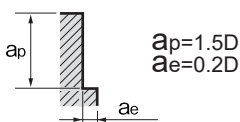
SIDE MILLING

HYP-VG4-EMS / LN-VG4-EMS



Vc	Low Carbon / Alloy / Tool Steels						Cast Iron		Stainless Steel		Titanium		Nickel Alloy		Aluminium Alloy	
			< 30 HRC		< 40 HRC		< 180 HB									
	150 m/min		130 m/min		110 m/min		130 m/min		110 m/min		100 m/min		40 m/min		200 m/min	
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
3	15900	1910	13800	1100	11650	840	13800	990	11650	930	10600	850	3200	260	21200	3390
4	11950	2060	10350	1240	8750	880	10350	1040	8750	1050	7950	950	2400	240	15900	3180
5	9550	2290	8300	1330	7000	980	8300	1160	7000	1260	6350	1140	1900	230	12750	3570
6	7950	2390	6900	1660	5850	1170	6900	1380	5850	1170	5300	1060	1600	260	10600	3820
8	5950	2020	5150	1650	4400	1140	5150	1340	4400	1140	4000	1040	1200	220	7950	4130
10	4750	1900	4150	1490	3500	980	4150	1160	3500	1120	3200	1020	950	190	6350	4060
12	4000	1760	3450	1380	2900	810	3450	970	2900	1040	2650	950	800	210	5300	4030
16	3000	1440	2600	1140	2200	700	2600	830	2200	880	2000	800	600	190	4000	3840
20	2400	1150	2050	900	1750	560	2050	660	1750	840	1600	770	500	200	3200	3070

Maximum depth of cut



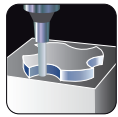
- (1) The above milling conditions are guideline based on an overhang length of 3 X D
- (2) Reduce speeds & feeds 20-30% for HYP-LN-VG4-EMS (Long with neck).

MILLING CONDITIONS

5 flute with chipbreaker for side milling endmill upto 4 x D

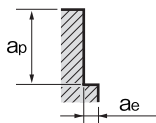
SIDE MILLING

HYP-CHB-EML



Vc	Low Carbon / Alloy / Tool Steels						Cast Iron		Stainless Steel		Titanium		Nickel Alloy		Aluminium Alloy	
			< 30 HRC		< 40 HRC		< 180 HB									
	160 m/min		150 m/min		140 m/min		150 m/min		110 m/min		100 m/min		40 m/min		250 m/min	
Ø	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)
6	7450	2610	6900	2170	6350	1750	6900	1900	5300	1540	4750	1380	1050	290	10600	4770
8	5550	1940	5150	1620	4750	1310	5150	1420	4000	1160	3600	1040	800	220	7950	3580
10	4450	1780	4150	1560	3800	1330	4150	1450	3200	1040	2850	930	650	230	6350	3180
12	3700	1480	3450	1290	3200	1120	3450	1210	2650	860	2400	780	550	190	5300	2650
14	3200	1440	2950	1250	2750	1100	2950	1180	2250	840	2050	770	450	180	4550	2730
16	2800	1260	2600	1110	2400	960	2600	1040	2000	750	1800	680	400	160	4000	2400
18	2500	1250	2300	1090	2100	950	2300	1040	1750	740	1600	680	350	160	3550	2490
20	2250	1130	2050	970	1900	860	2050	920	1600	680	1450	620	300	140	3200	2240

Maximum depth of cut



$$a_p = 4D$$

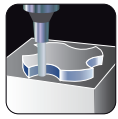
$$a_e = 0.05D$$

MILLING CONDITIONS

4 flute variable lead carbide endmill

MILLING

HYP-HI-EMS / (W)EMS / CR-HI-(W)EMS / CR-HD-(W)EMS



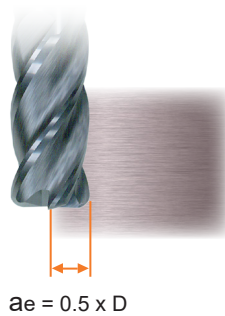
Vc	Low Carbon / Alloy / Tool Steel									Cast Iron			Stainless Steel			Aluminium / Mg			Titanium		
	500 ~ 800 N/mm ² HB 150-250			800 ~ 100 N/mm ² HRC 20~30			1000 ~ 1300 N/mm ² HRC 30~40			> HB 180			< 20 HRC						< 50 HRC		
	160 m/min			120 m/min			100 m/min			140 m/min			50 m/min			180 m/min			65 m/min		
Ø	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf
4	0,035	12,730	1,790	0,03	9,550	1,150	0,03	7,960	960	0,035	11,150	1,570	0,03	3,980	480	0,035	14,330	2,010	0,025	5,180	520
6	0,04	8,490	1,360	0,035	6,370	900	0,035	5,310	750	0,04	7,430	1,190	0,035	2,660	380	0,04	9,550	1,530	0,027	3,450	380
8	0,07	6,370	1,790	0,065	4,780	1,250	0,065	3,980	1,040	0,7	5,580	1,570	0,065	1,990	520	0,07	7,170	2,010	0,031	2,590	330
10	0,1	5,090	2,040	0,08	3,820	1,230	0,08	3,190	1,030	0,1	4,460	1,790	0,08	1,600	520	0,1	5,730	2,300	0,038	2,070	320
12	0,12	4,240	2,040	0,1	3,190	1,280	0,1	2,660	1,070	0,12	3,720	1,790	0,1	1,330	540	0,12	4,780	2,300	0,045	1,730	320
16	0,13	3,180	1,660	0,12	2,390	1,150	0,12	1,990	960	0,13	2,790	1,460	0,12	1,000	480	0,13	3,590	1,870	0,052	1,300	280
20	0,15	2,550	1,530	0,12	1,910	920	0,12	1,600	770	0,15	2,230	1,340	0,12	800	390	0,15	2,870	1,730	0,059	1,040	250

ae = width of cut / ap = depth of cut

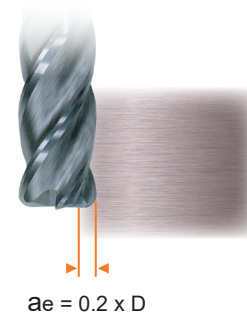
When changing milling type from slotting to side milling please reduce speeds and feeds using the coefficients below.



ap	Coe.
0.5	1.0
1.0	0.7
1.5	0.5
2.0	0.3



ap	Coe.
0.5	1.2
1.0	1.0
1.5	0.7
2.0	0.5



ap	Cow.
0.5	1.3
1.0	1.2
1.5	1.0
2.0	0.8

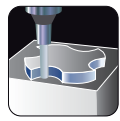
The above stated milling conditions are based on using the **RED** marked parameters

MILLING CONDITIONS

2 flute PCD endmill

SIDE MILLING

HYP-EDS-PCD / LS-EDS-PCD



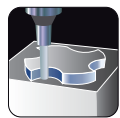
		Aluminium		Graphite		CFRP	
Vc		250 m/min		400 m/min		200 m/min	
\emptyset	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	
3	26,550	1,060	42,450	3,400	21,200	850	
4	19,900	1,200	31,850	3,200	15,900	950	
5	15,900	1,600	25,450	3,550	12,750	1,000	
6	13,250	1,600	21,200	3,400	10,600	1,050	
8	9,950	1,600	15,900	3,200	7,950	1,050	
10	7,950	1,600	12,750	3,050	6,350	1,050	
12	6,650	1,600	10,600	3,200	5,300	1,050	

Maximum depth of cut	Aluminium	Graphite	CFRP
	$a_p=1D$ $a_e=0.3D$	$a_p=1D$ $a_e=0.1D$	$a_p=1D$ $a_e=0.2D$

Reduce speeds & feeds 30-40% for HYP-LS-EDS-PCD.

SLOTTING

HYP-EDS-PCD / LS-EDS-PCD



		Aluminium		Graphite		CFRP	
Vc		250 m/min		400 m/min		200 m/min	
\emptyset	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	
3	26550	1120	37150	1860	15900	640	
4	19900	1120	27850	1950	11950	600	
5	15900	1120	22300	1780	9550	550	
6	13250	1120	18550	1800	7950	500	
8	9950	1120	13950	1650	5950	450	
10	7950	1120	11150	1600	4750	450	
12	6650	1120	9300	1650	4000	500	

Maximum depth of cut	Aluminium	Graphite	CFRP
	$a_p = < D \times 0.5D$		

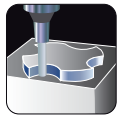
Reduce speeds & feeds 30-40% for HYP-LS-EDS-PCD.

MILLING CONDITIONS

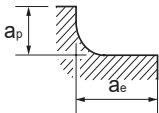
2 flute PCD ball nose endmill

SIDE MILLING

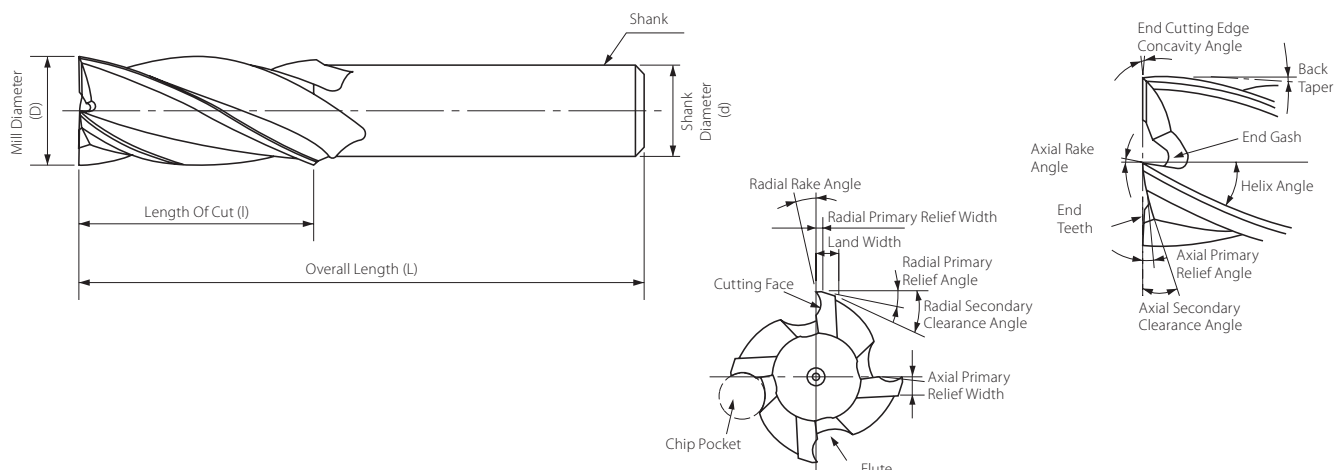
HYP-EBD-PCD / LS-EBD-PCD



		Aluminium		Graphite		CFRP	
Vc		250 m/min		450 m/min		400 m/min	
\emptyset	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	Speed (min ⁻¹)	Feed (mm/min.)	
3	26550	2150	47750	2400	42450	2100	
4	19900	2400	35800	2500	31850	2250	
5	15900	2550	28650	2850	25450	2550	
6	13250	2650	23850	2600	21200	2350	
8	9950	2400	17900	2150	15900	1900	
10	7950	2250	14300	1850	12750	1650	
12	6650	2150	11950	1650	10600	1500	

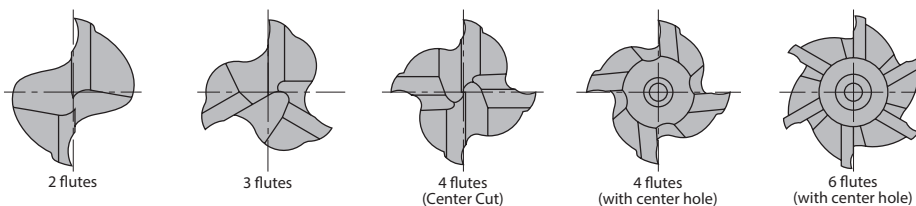
Maximum depth of cut		Aluminium	Graphite	CFRP
		$a_p=0.1D$ $a_e=0.2D$	$a_p=0.3D$ $a_e=0.1D$	$a_p=0.03D$ $a_e=0.6D$

Reduce speeds & feeds 30-40% for HYP-LS-EBD-PCD.



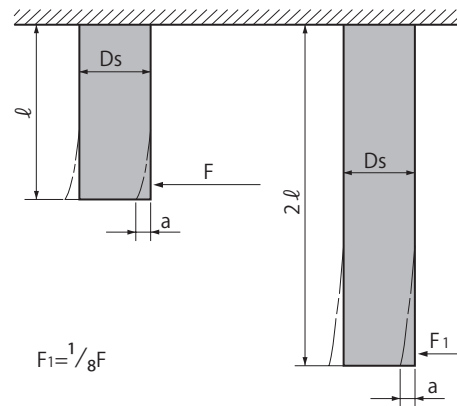
Number of flutes

The number of flutes should be determined by the work material, dimensions of the work piece and milling conditions. In general, an end mill with a small number of flutes and large chip room is used for roughing, and an end mill with a large number of flutes is used for finishing.



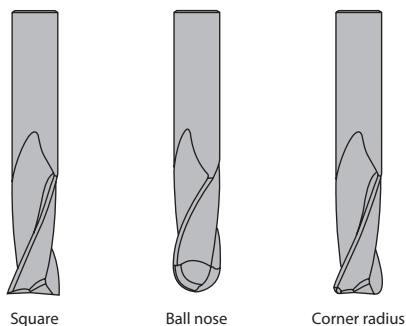
Length of cut

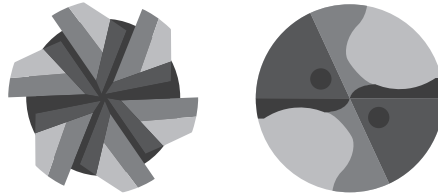
The shorter the end mill, the smaller the deflection and the stronger the rigidity. Because rigidity varies in proportion to length of cut by a factor to the power of 3 (for example, when the length of cut doubles, the rigidity decreases to 1/8), it is necessary to keep the length of cut as short as possible.



End profile

Stocked end profiles are typically square end ball nose and corner radius,





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