









Endmill for Graphite and Non-ferrous

ZAMUS GRA MATE SERIES

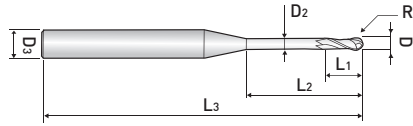


Endmill for Graphite and Non-ferrous _ ZAMUS GRA MATE SERIES

WIDIN

EDP. No.	APPEARANCE	FEATURE	INCH & METRIC	STOCK	PAGE
Gseries		DIAMOND COATING BALL NOSE	METRIC	•	364
GEseries		DIAMOND COATING END MILL	METRIC	•	637
WGR502series		2 FLUTE, DIAMOND COATING RADIUS	METRIC	•	368
WGR504series		4 FLUTE, DIAMOND COATING RADIUS	METRIC	•	369
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Endmill for Graphite and Non-ferrous ZAMUS GRA MATE Series



2 FLUTE, DIAMOND COATING BALL NOSE

- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc

Gseries

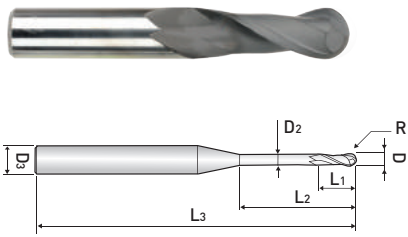


HELIX DIAMOND p.994

EDP. No.	D	R	L ₁	L ₂	L ₃	D ₂	D ₃
G00501003	0.5	0.25	1	3	50	0.45	4
G00501006				6			
G00501010				10			
G00601203	0.6	0.3	1.2	3	50	0.55	4
G00601206				6			
G00601208				8			
G00601210				10			
G00601212				12			
G0080164	0.8	0.4	1.6	4	50	0.75	4
G0080166				6			
G0080168				8			
G0100306	1	0.5	3	6	60	0.95	4
G0100308				8			
G0100310				10			
G0100312				12			
G0100314				14			
G0100316				16			
G0100318				18			
G0100320	20						
G0120410	1.2	0.6	4	10	70	1.15	4
G0150510	1.5	0.75	5	10	60	1.45	4
G0150512				12			
G0150516				16			
G0150520				20			
G0150525				25	70		
G0150530				30			

NEXT >>

Endmill for Graphite and Non-ferrous ZAMUS GRA MATE Series



2 FLUTE, DIAMOND COATING BALL NOSE

- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc

Gseries



HELIX



DIAMOND

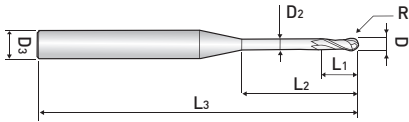


p.994

EDP. No.	D	R	L ₁	L ₂	L ₃	D ₂	D ₃	
G0200812	2	1	8	12	60	1.95	4	
G0200816				16				
G0200820				20				
G0200825				25	70			
G0200830				30				
G0200835				35	80			
G0200840				40				
G0201020				10	20			80
G0201020L								100
G0251020				2.5	1.25			10
G0301216	3	1.5	12	16	60	2.9	6	
G0301220				20				
G0301225				25	70			
G0301230				30				
G0301235				35	80			
G0301240				40				
G0301245				45	90			
G0301525				15				25
G04015S	4	2	15	-	50	-	4	
G04015M				-	80	-		
G04015L				-	120	-		
G0401520				20	60	3.9	6	
G0401525				25	70			
G0401530				30	80			
G0401535				35				
G0401540				40	90			
G0401545				45				
G0401550				50	100			
G0402030				20	30			80

NEXT >>

Endmill for Graphite and Non-ferrous ZAMUS GRA MATE Series



2 FLUTE, DIAMOND COATING BALL NOSE

- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc

Gseries



HELIX DIAMOND p.994

EDP. No.	D	R	L ₁	L ₂	L ₃	D ₂	D ₃
G0503050	5	2.5	30	50	100	4.8	6
G0503050L					150		
G06020S	6	3	20	-	70	-	6
G06020M					100		
G06020L					150		
G0603050	6	3	30	50	100	5.8	6
G0603050L					150		
G08025S	8	4	25	-	70	-	8
G08025M					110		
G08025L					160		
G0804060					110		
G0804060L	40	60	200	7.8			
G10030S	10	5	30	-	80	-	10
G10030M					120		
G10030L					170		
G1005070					120		
G1005070L	50	70	200	9.7			
G12035S	12	6	35	-	80	-	12
G12035M					130		
G12035L					180		
G1205575					130		
G1205575L	55	75	200	11.7			

■ Applicable Working Material

Carbon Steels (S45C, S55C...) ~HB225	Alloy Steels (SCM, SK...) HB22 ~325	Prehardened Steels(NAK...) HRC30~50	Hardened Steels		Copper	Graphite	Cast Iron FCD400, 500~	Aluminum	Stainless Steels
			~HRc55 SKD61	~HRc55 SKD11					
						◎		○	

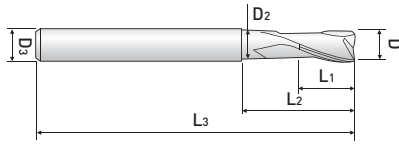
○:General Application ◎:The most suitable Application

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0,03	h6

※ These tools are manufactured based on order received.

Endmill for Graphite and Non-ferrous ZAMUS GRA MATE Series



2 FLUTE, DIAMOND COATING BALL NOSE

- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc

GEseries



HELIX

DIAMOND

p.995

EDP. No.	D	L ₁	L ₂	L ₃	D ₂	D ₃	
GE00501006	0.5	1	6	50	0.45	4	
GE00601206	0.6	1.2	6	50	0.55	4	
GE00601210			10				
GE00701506	0.7	1.5	6	50	0.65	4	
GE00802006	0.8	2	6	50	0.75	4	
GE0100308	1	3	8	60	0.95	4	
GE0100310			10				
GE0100312			12				
GE0150412	1.5	4	12	60	1.45	4	
GE0200612	2	6	12	60	1.95	4	
GE0200612S6						6	
GE0250812	2.5	8	12	60	2.43	4	
GE0301012	3	10	12	60	2.9	4	
GE0301016			16				
GE0301012S6			12			6	
GE0301016S6			16				
GE04012S	4	12	-	60	-	6	
GE0401216			16				
GE0401220			20				
GE0501520	5	15	20	60	4.8	6	
GE06020S	6	20	-	60	-	6	
GE0602030			30		80		5.8
GE0603050			50		150		
GE08025S	8	25	-	70	-	8	
GE0802540			40		100		7.8
GE0804070			70		150		
GE10030S	10	30	-	80	-	10	
GE1003050			50		100		9.7
GE1004580			80		160		
GE12030S	12	30	-	80	-	12	
GE1203050			50		110		11.7
GE1205080			80		160		

■ Applicable Working Material

Carbon Steels (S45C, S55C...) ~HB225	Alloy Steels (SCM, SK...) HB22 ~325	Prehardened Steels(NAK...) HRC30~50	Hardened Steels		Copper	Graphite	Cast Iron FCD400, 500~	Aluminum	Stainless Steels
			~HRC55 SKD61	~HRC55 SKD11					
						◎		○	

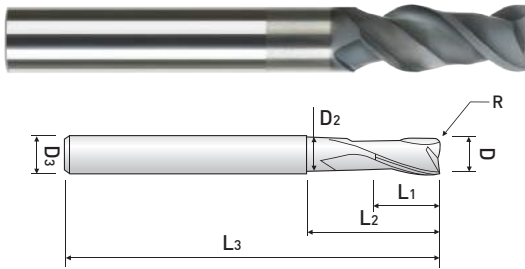
○:General Application ◎:The most suitable Application

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0,03	h6

※ These tools are manufactured based on order received.

Endmill for Graphite and Non-ferrous ZAMUS GRA MATE Series



2 FLUTE, DIAMOND COATING RADIUS ENDMILLS

- High performance on Graphite and Non-ferrous material
- Applicable various Shape machining by applying Variable Corner Radius

WGR502series



HELIX

AGAINST
CHIPPING

DIAMOND

p.995

EDP No.	D	R	L ₁	L ₂	L ₃	D ₂	D ₃
WGR502 002	0.2	-	0.3	-	40	-	3
WGR502 003	0.3	-	0.5	-	40	-	3
WGR502 004	0.4	-	0.6	-	40	-	3
WGR502 005 025	0.5	0.05	0.7	2.5	40	0.45	3
WGR502 005 040				4			
WGR502 006 030	0.6	0.05	0.9	3	40	0.55	3
WGR502 006 050				5			
WGR502 008 040	0.8	0.05	1.2	4	40	0.75	3
WGR502 008 070				7			
WGR502 010 050	1	0.1	1.5	5	40	0.95	3
WGR502 010 085				8.5			
WGR502 010 120				12			
WGR502 012 060	1.2	0.1	1.8	6	50	1.15	3
WGR502 012 100				10			
WGR502 015 075	1.5	0.15	2.2	7.5	50	1.4	3
WGR502 015 120				12			
WGR502 015 180				18			
WGR502 020 100	2	0.15	2.2	10	60	1.9	3
WGR502 020 160				16			
WGR502 020 250				25			
WGR502 030 100	3	0.2	3	10	65	2.9	4
WGR502 030 150				15			
WGR502 030 200				20			
WGR502 030 250				25			
WGR502 030 300	4	0.2	4	30	75	3.9	6
WGR502 040 200				20			
WGR502 040 300				30			
WGR502 040 400	5	0.3	5	40	90	4.9	6
WGR502 050 200				20			
WGR502 050 300				30			
WGR502 050 400				40			
WGR502 050 500	6	0.3	6	50	100	5.9	6
WGR502 060 300				30			
WGR502 060 400				40			
WGR502 060 500				50			
WGR502 060 600				60			

■ Applicable Working Material

Carbon Steels (S45C, S55C...) ~HB225	Alloy Steels (SCM, SK...) HB22 ~325	Prehardened Steels(NAK...) HRC30~50	Hardened Steels		Copper	Graphite	Cast Iron FCD400, 500~	Aluminum	Stainless Steels
			~HRC55 SKD61	~HRC55 SKD11					
						◎		○	

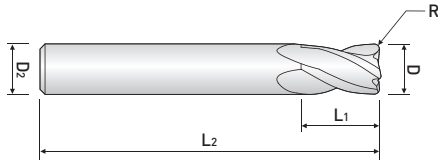
○:General Application ◎:The most suitable Application

■ Tolerance

Mill Dia. (mm)		Shank Dia.
Dia.	Tolerance	
All size	0 ~ -0,020	h6

※ These tools are manufactured based on order received.

Endmill for Graphite and Non-ferrous ZAMUS GRA MATE Series



4 FLUTE, DIAMOND COATING RADIUS ENDMILLS

- Improve coating stability by applying high-end Diamond Coating
- Applicable non-ferrous material such as Graphite and CFRP

WGR504series



HELIX

D ≤ 12

D > 12

DIAMOND

p.996

EDP No.	D	R	L ₁	L ₂	D ₂
WGR504 030 02 080	3.0	0.2	8	80	4
WGR504 030 03 080		0.3			
WGR504 030 05 080		0.5			
WGR504 040 03 100	4.0	0.3	10	100	4
WGR504 040 05 100		0.5			
WGR504 040 10 100		1.0			
WGR504 060 03 110	6.0	0.3	15	110	6
WGR504 060 05 110		0.5			
WGR504 060 10 110		1.0			
WGR504 080 05 110	8.0	0.5	20	110	8
WGR504 080 10 110		1.0			
WGR504 080 05 130		0.5		130	
WGR504 080 10 130		1.0			
WGR504 100 05 130	10.0	0.5	25	130	10
WGR504 100 10 130		1.0			
WGR504 100 05 150		0.5		150	
WGR504 100 10 150		1.0			
WGR504 120 05 130	12.0	0.5	30	130	12
WGR504 120 10 130		1.0			
WGR504 120 05 150		0.5		150	
WGR504 120 10 150		1.0			
WGR504 160 05 200	16.0	0.5	32	200	16
WGR504 160 10 200		1.0			
WGR504 200 05 200	20.0	0.5	40	200	20
WGR504 200 10 200		1.0			

■ Applicable Working Material

Carbon Steels (S45C, S55C...) ~HB225	Alloy Steels (SCM, SK...) HB22 ~325	Prehardened Steels(NAK...) HRC30~50	Hardened Steels		Copper	Graphite	Cast Iron FCD400, 500~	Aluminum	Stainless Steels
			~HRC55 SKD61	~HRC55 SKD11					
						◎		○	

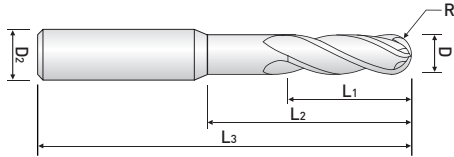
○:General Application ◎:The most suitable Application

■ Tolerance

Mill Dia. (mm)		Shank Dia.
Dia.	Tolerance	
up to 12	0 - -0,020	h6
over 12	0 - -0,030	

※ These tools are manufactured based on order received.

Endmill for Graphite and Non-ferrous ZAMUS GRA MATE Series



4 FLUTE, DIAMOND COATING, BALL NOSE ENDMILLS

- High performance on Graphite and Non-ferrous material

WGB504series



HELIX ALL SIZE DIAMOND p.996

EDP. No.	D	R	L ₁	L ₂	L ₃	D ₂
WGB504 010	1.0	0.5	3	-	60	4
WGB504 010 10				10		
WGB504 010 15				15		
WGB504 010 20				20		
WGB504 010 25				25		
WGB504 010 30				30		
WGB504 015	1.5	0.75	4	-	80	4
WGB504 015 10				10		
WGB504 015 15				15		
WGB504 015 20				20		
WGB504 015 25				25		
WGB504 015 30				30		
WGB504 020	2.0	1.0	6	-	100	4
WGB504 020 10				10		
WGB504 020 15				15		
WGB504 020 20				20		
WGB504 020 25				25		
WGB504 020 30				30		
WGB504 020 40	40					
WGB504 030	3.0	1.5	9	-	100	4
WGB504 030 15				15		
WGB504 030 20				20		
WGB504 030 25				25		
WGB504 030 30				30		
WGB504 030 40				40		
WGB504 030 50	50					
WGB504 040 060	4.0	2.0	12	-	60	4
WGB504 040 080					80	
WGB504 040 110					110	
WGB504 040 130					130	
WGB504 040 150					150	
WGB504 050 080	5.0	2.5	15	25	80	6
WGB504 050 110					110	
WGB504 060 090	6.0	3.0	20	-	90	6
WGB504 060 110					110	
WGB504 060 130					130	
WGB504 060 150					150	
WGB504 060 180					180	

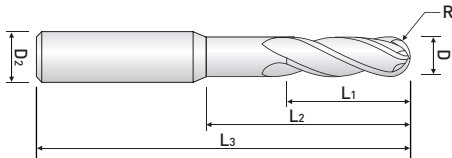
NEXT >>>

Endmill for Graphite and Non-ferrous *ZAMUS GRA MATE Series*



4 FLUTE, DIAMOND COATING, BALL NOSE ENDMILLS

- High performance on Graphite and Non-ferrous material



WGB504series



HELIX ALL SIZE DIAMOND p.996

EDP No.	D	R	L ₁	L ₂	L ₃	D ₂
WGB504 080 110	8.0	4.0	25	-	110	8
WGB504 080 130					130	
WGB504 080 150					150	
WGB504 080 200					200	
WGB504 100 110	10.0	5.0	30	-	110	10
WGB504 100 130					130	
WGB504 100 150					150	
WGB504 100 180					180	
WGB504 100 200					200	
WGB504 120 110	12.0	6.0	35	-	110	12
WGB504 120 130					130	
WGB504 120 150					150	
WGB504 120 180					180	
WGB504 120 200					200	
WGB504 160 150	16.0	8.0	50	-	150	16
WGB504 160 200					200	
WGB504 200 150	20.0	10.0	60	-	150	20
WGB504 200 200					200	

■ Applicable Working Material

Carbon Steels (S45C, S55C...) ~HB225	Alloy Steels (SCM, SK...) HB22 ~325	Prehardened Steels(NAK...) HRC30~50	Hardened Steels		Copper	Graphite	Cast Iron FCD400, 500~	Aluminum	Stainless Steels
			~HRC55 SKD61	~HRC55 SKD11					
						◎		○	

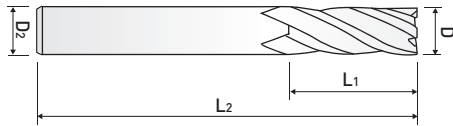
○:General Application ◎:The most suitable Application

■ Tolerance

Mill Dia. (mm)		Shank Dia.
Dia.	Tolerance	
up to 12	0 - -0,020	h6
over 12	0 - -0,030	

※ These tools are manufactured based on order received.

Endmill for Graphite and Non-ferrous ZAMUS GRA MATE Series



4 FLUTE, DIAMOND COATING, BALL NOSE ENDMILLS

- High performance on Graphite, Reinforced plastic and Non-ferrous material

WGE504series



HELIX



DIAMOND



p.998

EDP No.	D	L ₁	L ₂	D ₂
WGE504 020	2.0	6	50	4
WGE504 020 08		8		
WGE504 020 10		10		
WGE504 025	2.5	8	50	4
WGE504 030	3.0	8	50	6
WGE504 030 10		10		
WGE504 030 12		12		
WGE504 030 16		16		
WGE504 030 20		20	60	
WGE504 040	4.0	10	50	6
WGE504 040 12		12		
WGE504 040 16		16	60	
WGE504 040 20		20		
WGE504 040 25		25		
WGE504 050	5.0	15	60	6
WGE504 060	6.0	15	60	6
WGE504 060 20		20	110	
WGE504 060 30		30	150	
WGE504 080	8.0	20	70	8
WGE504 080 30		30	110	
WGE504 080 40		40	150	
WGE504 100	10.0	25	75	10
WGE504 100 40		40	110	
WGE504 100 50		50	150	
WGE504 120	12.0	30	80	12
WGE504 120 50		50	120	
WGE504 120 60		60	160	
WGE504 160	16.0	50	110	16
WGE504 160 70		70	160	
WGE504 160 90		90	160	
WGE504 160 100		100	200	
WGE504 200	20.0	70	160	20
WGE504 200 90		90	160	
WGE504 200 100		100	200	

■ Applicable Working Material

Carbon Steels (S45C, S55C...) ~HB225	Alloy Steels (SCM, SK...) HB22 ~325	Prehardened Steels(NAK...) HRC30~50	Hardened Steels		Copper	Graphite	Cast Iron FCD400, 500~	Aluminum	Stainless Steels
			~HRC55 SKD61	~HRC55 SKD11					
						◎		○	

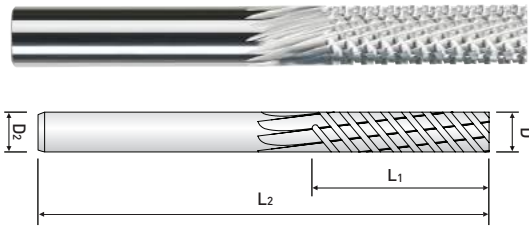
○:General Application ◎:The most suitable Application

■ Tolerance

Mill Dia. (mm)		Shank Dia.
Dia.	Tolerance	
All Size	0 ~ -0,030	h6

※ These tools are manufactured based on order received.

Endmill for Graphite and Non-ferrous ZAMUS GRA MATE Series



WINNER ROUTER SERIES

- Suitable for Ceramic machining such as Graphite and Non-ferrous material
- Suitable for composite material machining such as CFRP, AFRP and GFRP

WROUseries



HELIX

HELIX

DIAMOND

p.997

EDP. No.	D	L ₁	L ₂	D ₂	No.OF FLUTE	END STYLE	COATING
WROU060XN	6	25	63	6	8	X	X
WROU060YN						O	X
WROU060XC	6	25	63	6	8	X	O
WROU060YC						O	O
WROU080XN	8	25	63	8	10	X	X
WROU080YN						O	X
WROU080XC	8	25	63	8	10	X	O
WROU080YC						O	O
WROU100XN	10	28	63	10	12	X	X
WROU100YN						O	X
WROU100XC	10	28	63	10	12	X	O
WROU100YC						O	O
WROU120XN	12	38	89	12	12	X	X
WROU120YN						O	X
WROU120XC	12	38	89	12	12	X	O
WROU120YC						O	O

■ Applicable Working Material

Carbon Steels (S45C, S55C...) ~HB225	Alloy Steels (SCM, SK...) HB22 ~325	Prehardened Steels(NAK...) HRC30~50	Hardened Steels		Copper	Graphite	Cast Iron FCD400, 500~	Aluminum	Stainless Steels
			~HRC55 SKD61	~HRC55 SKD11					
						◎		○	

○:General Application ◎:The most suitable Application

■ Tolerance

Mill Dia. (mm)		Shank Dia.
Dia.	Tolerance	
All Size	0 ~ -0,05	h6

※ These tools are manufactured based on order received.