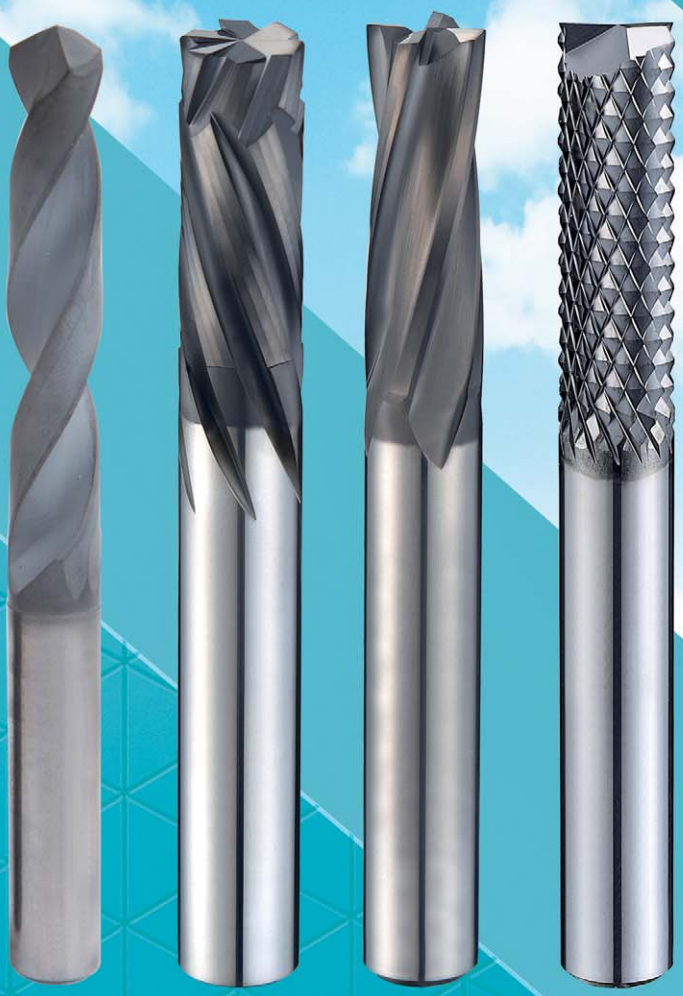
YE-CM14

Registered
ISO 9001:2008 / ISO 14001:2004

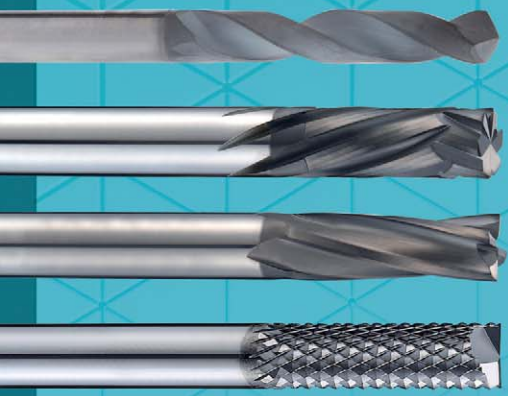
kotra GLOBAL BRAND 2012

for COMPOSITE MATERIALS

- CARBIDE DREAM DRILLS·CFRP
- D-POWER CFRP DUAL HELIX CARBIDE END MILLS
- D-POWER CFRP 4 FLUTE CARBIDE END MILLS
- CARBIDE ROUTERS END MILL TYPE



YG-1 CO., LTD.



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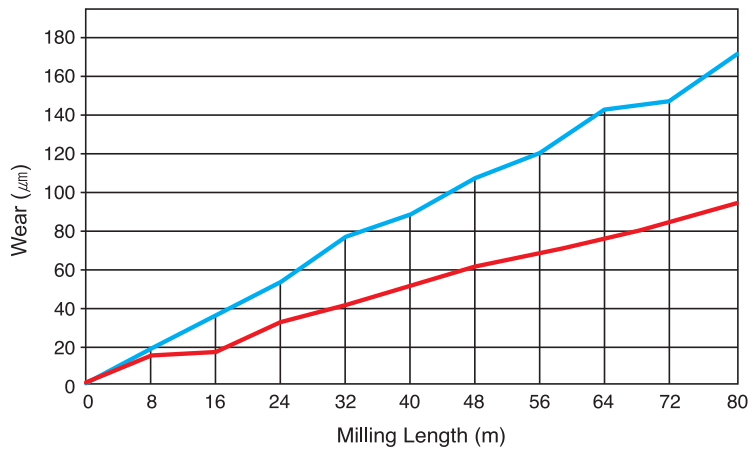
YG1YECM140108001

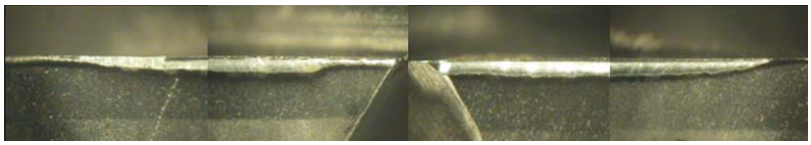
CASE STUDY ◆ D-POWER CFRP DUAL HELIX CARBIDE END MILLS



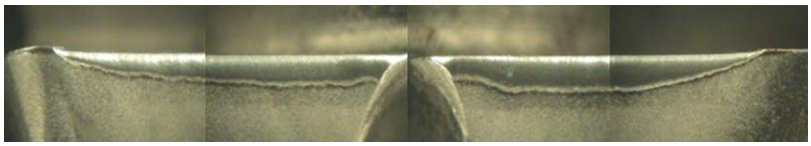
CUTTING CONDITIONS

Tools : GUF40060
Size : Ø 6(R0.5)×Ø 6×12×65
Work Material : CFRP
R.P.M : 7,960 rev./min.
Feed : 1,145 mm/min.
Cutting Depth : Axial : 6 mm
Radial : 2.4 mm
Coolant : Dry Cut
Overhang : 29 mm
Milling Method : Side Cutting
Machine : Machining Center

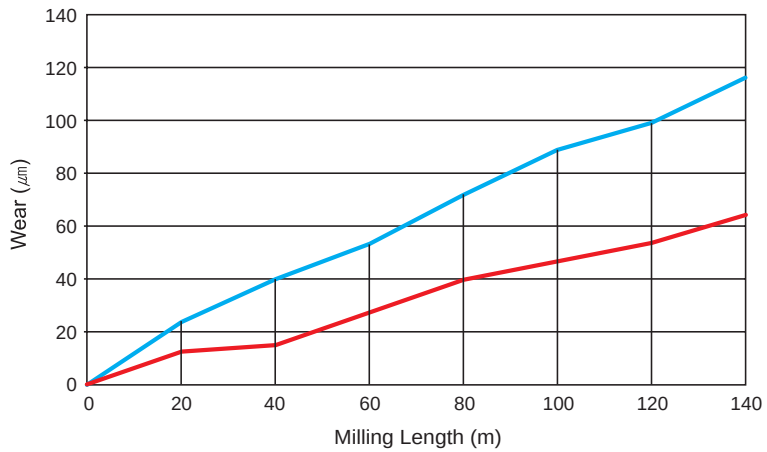
YG-1
(Total Milling Length 80m)



Competitor
(Total Milling Length 80m)



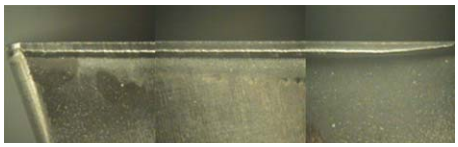
CASE STUDY ◆ D-POWER CFRP 4 FLUTE CARBIDE END MILLS



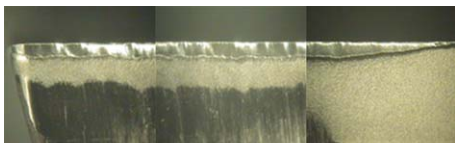
CUTTING CONDITIONS

Tools : GUF39120
Size : Ø 12×Ø 12×36×100
Work Material : CFRP
R.P.M : 5,310 rev./min.
Feed : 1,275 mm/min.
Cutting Depth : Axial : 12 mm
Radial : 1.2 mm
Coolant : Dry Cut
Overhang : 56 mm
Milling Method : Down & Side Cutting
Machine : Machining Center

YG-1
(Total Milling Length 140m)



Competitor
(Total Milling Length 140m)

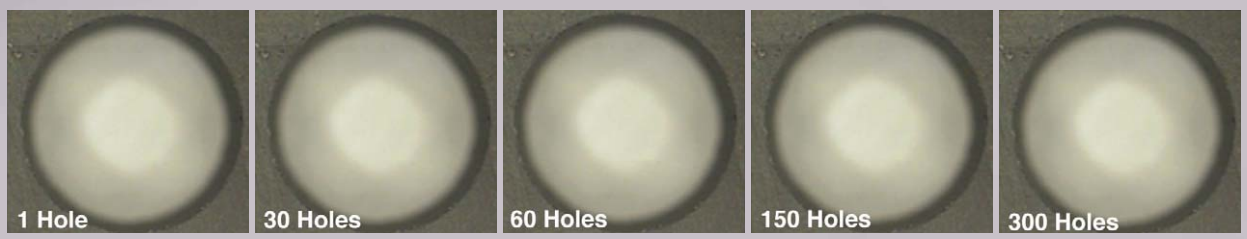


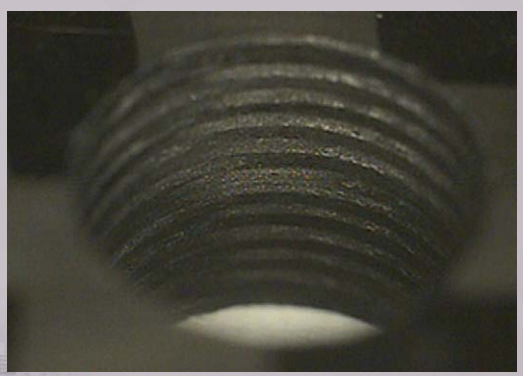
CASE STUDY ◆ CARBIDE DREAM DRILL - CFRP

CUTTING CONDITIONS

Tools : DI473060
Size : Ø 6.0×Ø 6×44×82
Work Material : CFRP
R.P.M : 6,366 rev./min.
Feed : 254.64 mm/min.
Drilling Depth : 6mm, Through Hole
Coolant : Dry Cut

YG-1





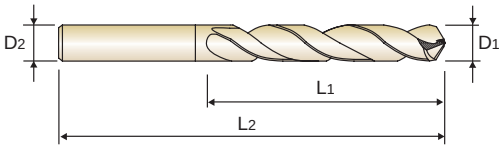
DREAM DRILLS-CFRP

DI473 SERIES

CARBIDE, DREAM DRILLS - CFRP
VOLLHARTMETALL DREAM SPIRALBOHRER - CFK

- ▶ Special point type improves hole quality for Composite Material
  -> Minimized burr and delamination at Entry / Exit Hole
- ▶ Outstanding performance
- ▶ Long tool life and increased production by Diamond Coating

- ▶ Spezielle Spitzengeometrie zur Verbesserung der Bohrungsqualität bei Composite-Materialien
  -> Minimiert die Grat-Bildung beim Bohrungs Ein- und Austritt
- ▶ Überzeugende Schnittdaten
- ▶ Lange Standzeiten und erhöhte Produktivität durch Diamant-Beschichtung



DIN 6537 | MG | h6 | m7 | 118°

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
DIAMOND COATED	D_1	D_2	L_1	L_2
DI473025	**2.5**	6	24	66
DI473030	**3.0**	6	28	66
DI473040	**4.0**	6	36	74
DI473050	**5.0**	6	44	82
DI473060	**6.0**	6	44	82
DI473080	**8.0**	8	53	91
DI473090	**9.0**	10	61	103
DI473100	**10.0**	10	61	103
DI473110	**11.0**	12	71	118
DI473120	**12.0**	12	71	118

CUTTING CONDITIONS

MATERIAL	CFRP		
DIAMETER	Speed (m/min)	RPM	Feed (mm/rev)
2.5	100 ~ 150	12,700 ~ 19,000	0.03 ~ 0.07
3.0		10,600 ~ 15,900	
4.0		8,000 ~ 11,900	
5.0		6,370 ~ 9,500	
6.0		5,300 ~ 8,000	
8.0		4,000 ~ 6,000	
9.0		3,500 ~ 5,300	
10.0		3,200 ~ 4,700	
11.0		2,900 ~ 4,300	
12.0		2,700 ~ 3,900	

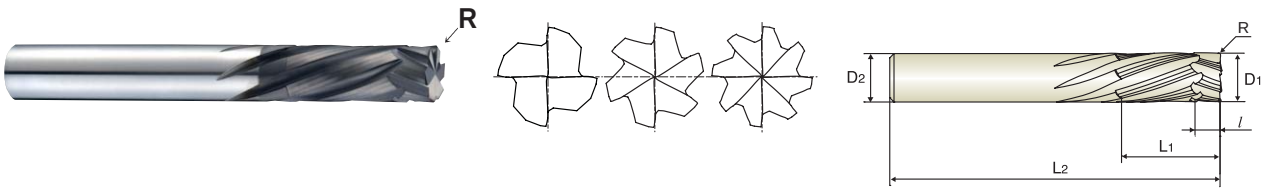
D-POWER CFRP END MILLS

GUF40 SERIES

CARBIDE, MULTI FLUTE DUAL HELIX
VOLLHARTMETALL, MULTI SCHNEIDEN DOPPEL HELIX

- ▶ For Composite Materials - CFRP, GFRP
- ▶ Reduce delamination and burrs
- ▶ Excellent abrasion resistance due to Diamond Coating

- ▶ Für verbund materialien - CFK und GFK
- ▶ Verringert Ablösungen (Delamination) und Gratbildung
- ▶ Diamant-Beschichtung mit ausgezeichneter Abriebfestigkeit



MG | 4-8 | 20°/20° | PLAIN

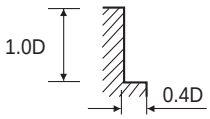
Unit : mm

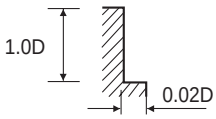
EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
DIAMOND COATED	R	D_1	D_2	$L_1(l)$	L_2	
GUF40060	R0.5	**6.0**	6	12(3)	65	4
GUF40080	R0.5	**8.0**	8	16(4)	70	6
GUF40100	R0.5	**10.0**	10	20(5)	80	6
GUF40120	R0.5	**12.0**	12	24(6)	90	8

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

CUTTING CONDITIONS

MATERIAL	CFRP				GFRP				CFRP				GFRP			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	7950	1115	150	0.035	4240	425	80	0.025	10610	1995	200	0.047	5300	740	100	0.035
8.0	5960	1610	150	0.045	3180	590	80	0.031	7950	2955	200	0.062	3970	955	100	0.040
10.0	4770	1575	150	0.055	2540	565	80	0.037	6360	2940	200	0.077	3180	860	100	0.045
12.0	3970	2065	150	0.065	2120	730	80	0.043	5300	3900	200	0.092	2650	1060	100	0.050





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/t

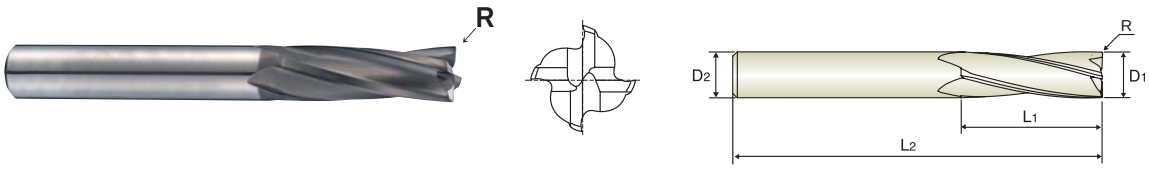
D-POWER CFRP END MILLS

GUF39 SERIES

CARBIDE, 4 FLUTE
VOLLHARTMETALL, 4 SCHNEIDEN

- ▶For Composite Materials - CFRP, GFRP
- ▶Reduce delamination and burrs
- ▶Excellent abrasion resistance due to Diamond Coating

- ▶Für verbund materialien - CFK und GFK
- ▶Verringert Ablösungen (Delamination) und Gratbildung
- ▶Diamant-Beschichtung mit ausgezeichneter Abriebfestigkeit



MG | 4 | 15° | PLAIN

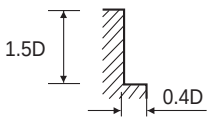
Unit : mm

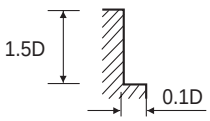
EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
DIAMOND COATED	R	D_1	D_2	L_1	L_2
GUF39060	R0.2	**6.0**	6	18	65
GUF39080	R0.2	**8.0**	8	24	70
GUF39100	R0.3	**10.0**	10	30	80
GUF39120	R0.3	**12.0**	12	36	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

CUTTING CONDITIONS

MATERIAL	CFRP				GFRP				CFRP				GFRP			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	10610	1485	200	0.035	5300	530	100	0.025	10610	1190	200	0.028	5300	530	100	0.025
8.0	7950	1430	200	0.045	3970	490	100	0.031	7950	1145	200	0.036	3970	445	100	0.028
10.0	6360	1400	200	0.055	3180	470	100	0.037	6360	1120	200	0.044	3180	405	100	0.032
12.0	5300	1380	200	0.065	2650	455	100	0.043	5300	1100	200	0.052	2650	370	100	0.035





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/t

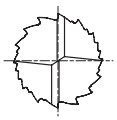
ROUTERS

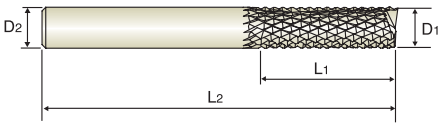
RTI104 SERIES

CARBIDE, ROUTER END MILL TYPE
MIKROVERZAHNTER VHM FRÄSER

- ▶For Composite Materials - CFRP, GFRP
- ▶Reduce delamination and burrs
- ▶Excellent abrasion resistance due to Diamond Coating

- ▶Für verbund materialien - CFK und GFK
- ▶Verringert Ablösungen (Delamination) und Gratbildung
- ▶Diamant-Beschichtung mit ausgezeichneter Abriebfestigkeit



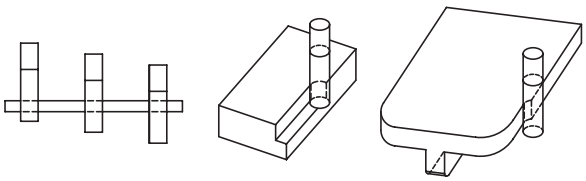


MG PLAIN

Unit : mm

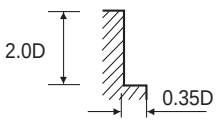
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
DIAMOND COATED	D1	D2	L1	L2
RTI104030	**3.0**	3	9	50
RTI104040	**4.0**	4	12	50
RTI104050	**5.0**	5	15	50
RTI104060	**6.0**	6	18	65
RTI104080	**8.0**	8	24	75
RTI104100	**10.0**	10	30	85
RTI104120	**12.0**	12	36	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
-0.02 ~ -0.08	h6



CUTTING CONDITIONS

MATERIAL	CFRP			GFRP		
DIAMETER	RPM	FEED	Vc	RPM	FEED	Vc
3.0	21220	1270	200	10610	635	100
4.0	15910	1430	200	7950	715	100
5.0	12730	1910	200	6360	950	100
6.0	10610	2225	200	5300	1110	100
8.0	7950	2620	200	3970	1310	100
10.0	6360	3050	200	3180	1525	100
12.0	5300	3390	200	2650	1695	100



RPM = rev./min.
FEED = mm/min.
Vc = m/min.