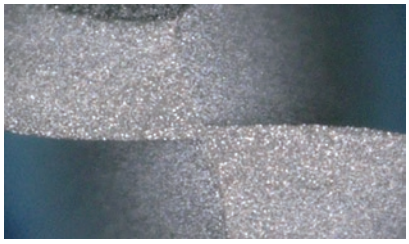
Diamond Coated End Mills for Graphites (For Finishing)

DF End Mill Series DF2XLBF

The combination of optimized cutting edges and a diamond coating greatly enhances cutting performance.

Note that excellent finished surfaces can be achieved with graphites!

End Cutting Edge Geometry



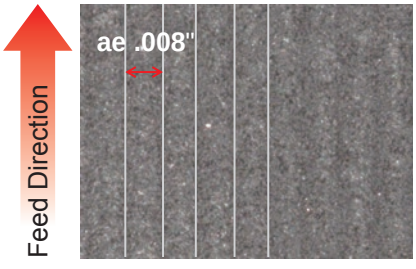
Crystallized Diamond Coating

Optimization of the coating film provides even higher sharpness.

Seamless Cutting Edge

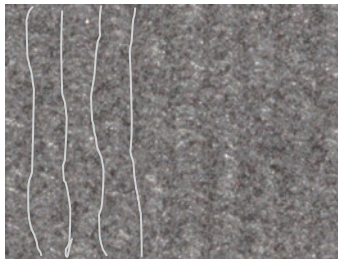
Outstanding finishes are possible even for wall surface machining using minor cutting edges.

Plane Surface Comparison (Graphite ISO-63)



DF2XLBF

The regular cutter path guarantees excellent sharpness.



Conventional

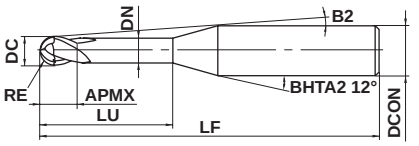
Poor sharpness can cause the cutter path to be crushed.

MITSUBISHI MATERIALS CORPORATION

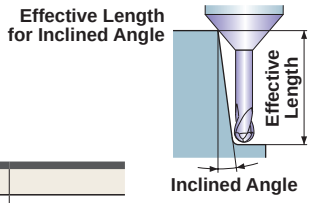
DF2XLBF (For Finishing) NEW

Ball nose, Medium cut length, 2 flute, Long neck, For graphites

Aluminum Alloy	Copper Alloy	Graphite	Zirconia (Before Sintering)	Rigid Composite Resin (Composite Resin)	Machineable Ceramics
○	◎	◎	◎	◎	○



Type1



R	0.3≤RE≤1	1.5≤RE			
	±0.005	±0.01			
h5	DCON=4				
	0 - 0.008				

Diamond coated long-neck ball end mills are ideal for finished surfaces of non-ferrous metals.

(mm)

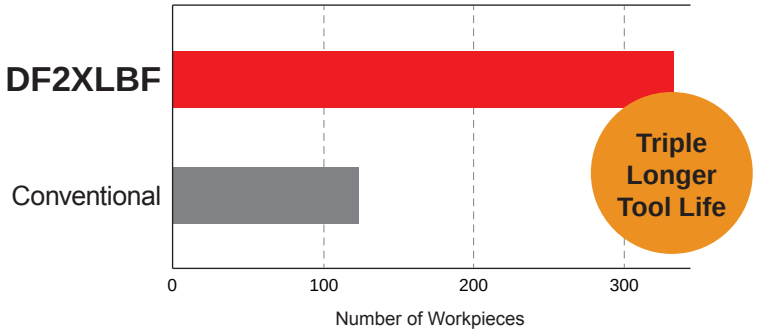
Order Number	RE	DC	APMX	LU	DN	B2	LF	DCON	No.F*	Stock	Type	Effective Length for Inclined Angle 30'	1°	2°	3°
DF2XLBFR0030N100	0.3	0.6	0.45	10	0.57	5.5°	50	4	2	●	1	10.4	10.9	11.9	13.2
DF2XLBFR0050N120	0.5	1	1.5	12	0.86	4.6°	50	4	2	●	1	12.6	13.2	14.4	15.9
DF2XLBFR0050N160	0.5	1	1.5	16	0.86	3.8°	50	4	2	●	1	16.8	17.5	19.2	21.3
DF2XLBFR0050N200	0.5	1	1.5	20	0.86	3.2°	50	4	2	●	1	21	21.9	24	26.6
DF2XLBFR0100N160	1	2	3	16	1.86	2.9°	50	4	2	●	1	16.7	17.4	19	*
DF2XLBFR0100N200	1	2	3	20	1.86	2.4°	50	4	2	●	1	20.9	21.8	23.9	*
DF2XLBFR0150N160	1.5	3	4.5	16	2.86	1.7°	50	4	2	●	1	16.7	17.3	18.9	20.8
DF2XLBFR0150N200	1.5	3	4.5	20	2.86	1.4°	50	4	2	●	1	20.8	21.7	23.7	26.1

* Number of Flutes

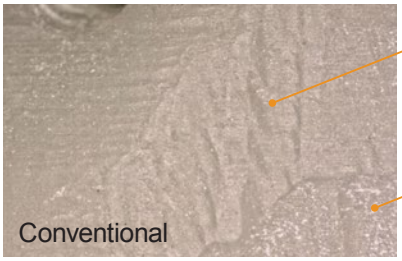
* No Interference

Application Example

Tool Life Comparison (Reference Surface Roughness)



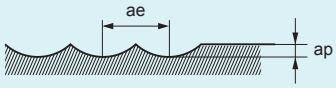
Comparison of Surface Roughness

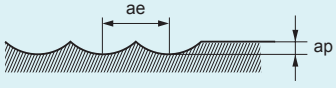


● : Inventory maintained.

Recommended Cutting Conditions

(mm)

Work Material			Graphite				Zirconia (Before Sintering)			
DC	**RE**	**LU**	**n** (min^{-1})	**vf** (mm/min)	**ap**	**ae**	**n** (min^{-1})	**vf** (mm/min)	**ap**	**ae**
0.6	R0.3	10	35000	1000	0.05	0.015	26000	600	0.06	0.03
1	R0.5	10	40000	2000	0.10	0.200	26000	600	0.10	0.05
		16	35000	1500	0.09	0.200	26000	600	0.08	0.04
		20	30000	1100	0.08	0.200	26000	600	0.08	0.04
2	R1	16	30000	2000	0.20	0.500	18000	1400	0.06	0.80
		20	30000	2000	0.20	0.500	18000	1200	0.50	0.60
3	R1.5	16	28000	3000	0.30	0.900	15000	1600	0.90	0.90
		20	25000	2500	0.20	0.900	15000	1400	0.60	0.80
Depth of Cut										

Work Material			Copper, Copper Alloys				Rigid Composite Resin (Composite Resin)			
DC	**RE**	**LU**	**n** (min^{-1})	**vf** (mm/min)	**ap**	**ae**	**n** (min^{-1})	**vf** (mm/min)	**ap**	**ae**
0.6	R0.3	10	30000	600	0.005	0.040	28000	450	0.050	0.050
1	R0.5	10	33000	1400	0.010	0.100	25000	900	0.100	0.100
		16	25000	800	0.007	0.080	25000	700	0.080	0.080
		20	20000	500	0.005	0.050	25000	600	0.080	0.080
2	R1	16	30000	1800	0.050	0.200	25000	2100	0.800	0.800
		20	20000	1200	0.040	0.200	25000	1800	0.500	0.500
3	R1.5	16	28000	3000	0.300	0.300	25000	2400	1.000	1.000
		20	25000	2500	0.200	0.300	25000	2100	0.800	0.800
Depth of Cut										

(Note 1) When high machining accuracy is needed, or the work materials becomes chipped, we recommend lowering the revolution and the feed rate.

(Note 2) If the rigidity of the machine or the work materials installation is very low, or chattering and noise are generated, reduce the revolution and the feed rate proportionately.

(Note 3) When drying and machining work materials that contain resin, be careful of tool breakage and mechanical problems (as there is a possibility of blockage caused by cutting chips).

(Note 4) Use a milling machine dedicated for graphites.

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DF2XLBF

For your safety
●Don't touch breakers and chips without gloves. ●Please machine within recommended application range, and exchange expired tools with new parts in advance. ●Please use safety cover and wear safety glasses. ●When using compounded cutting oils, please take fire prevention. ●When attaching inserts or spare parts, please use the attached wrench or driver. ●When using tools in revolution machining, please make a trial run to check run-out, vibration, abnormal sounds etc.

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