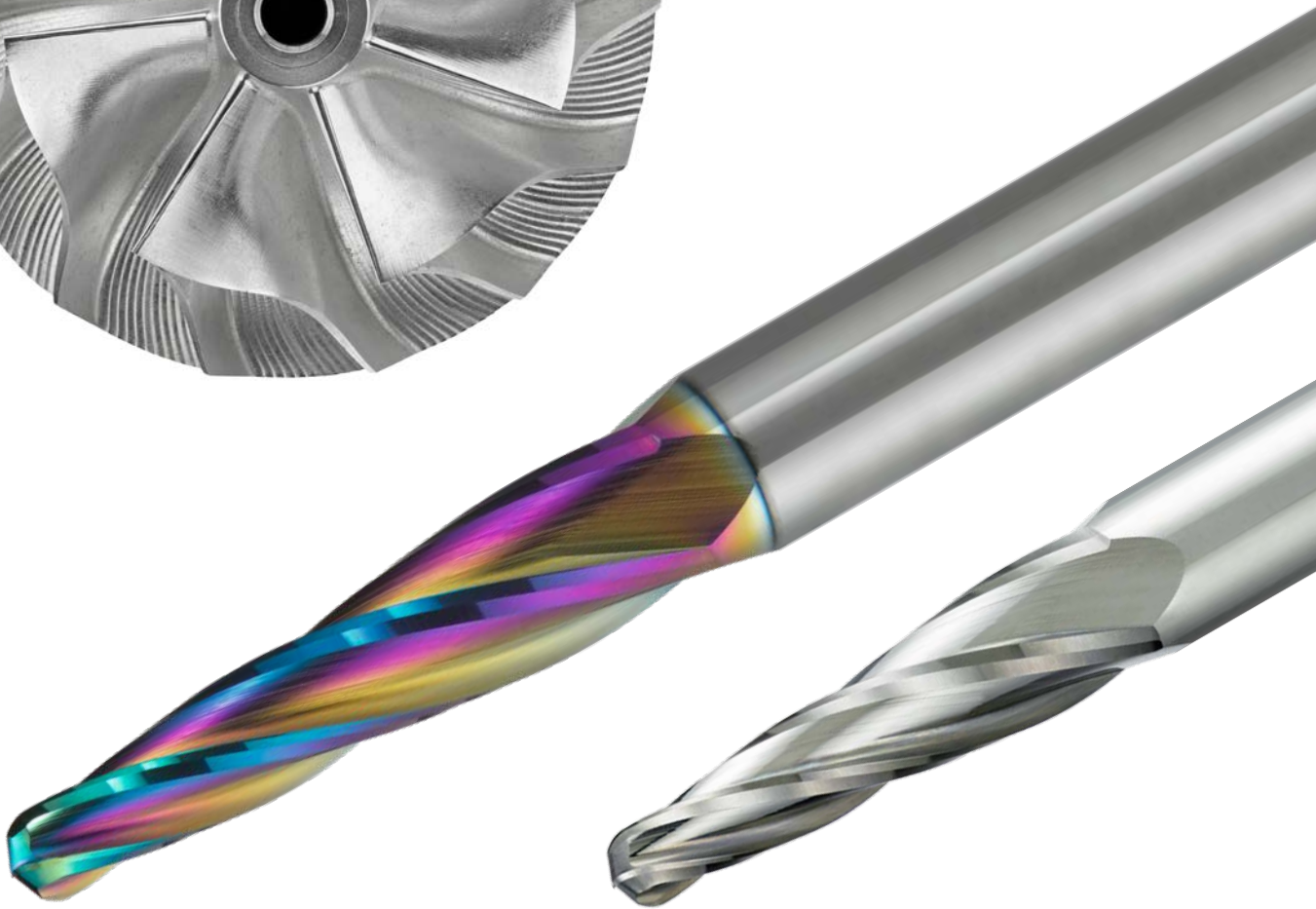


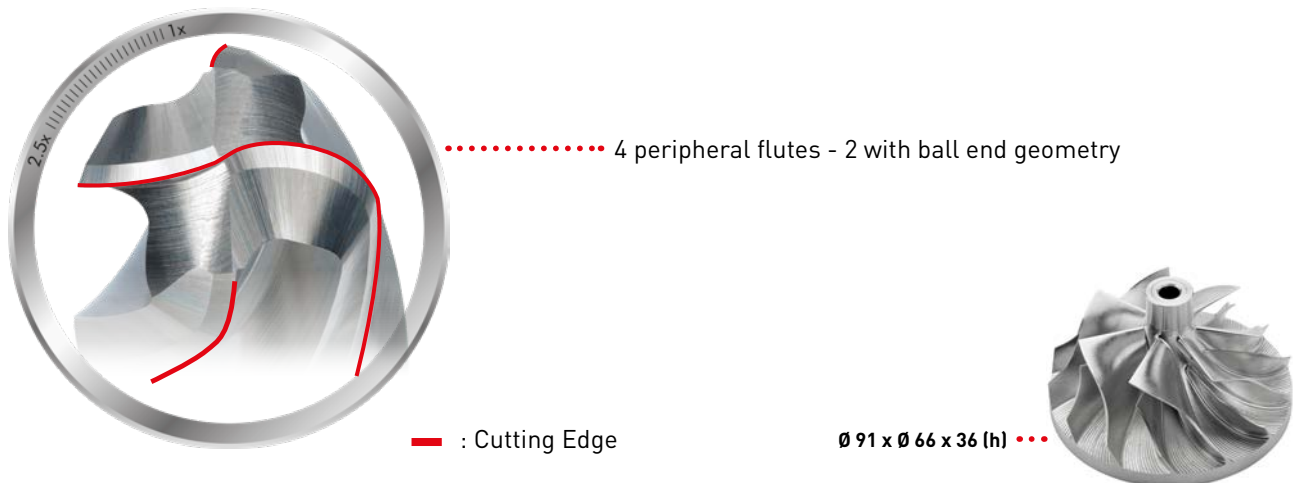
DLC4LATB / C4LATB

RIGID DESIGN AND NEW DLC COATED TYPE
FOR HIGH EFFICIENCY, RELIABLE MACHINING OF
ALUMINIUM IMPELLERS

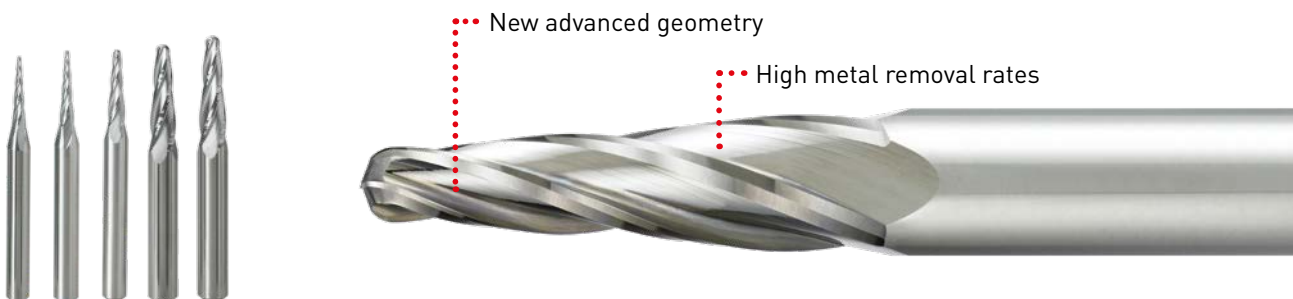


DLC4LATB / C4LATB

HIGH EFFICIENCY MACHINING OF ALUMINIUM ALLOYS



C4LATB

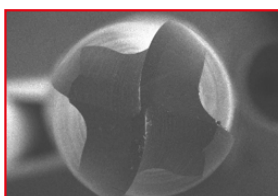


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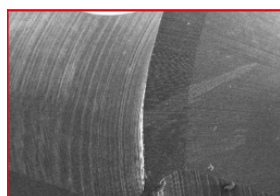
The uniquely developed DLC coating provides excellent welding resistance during high speed machining and when the coolant supply is reduced. Additionally, the low coefficient of friction reduces cutting resistance.



DLC4LATB

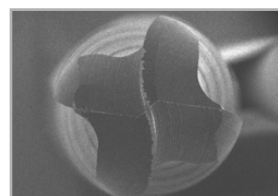


x 50

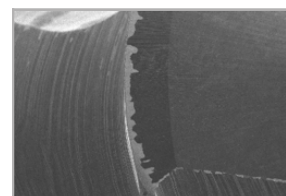


x 150

Conventional tool



x 50

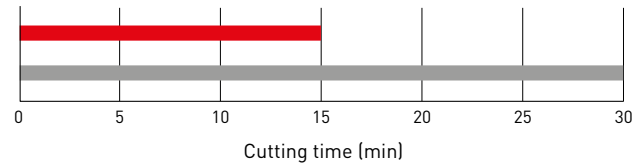


x 150

DLC4LATB / C4LATB

APPLICATION EXAMPLE / CUTTING PERFORMANCE

Material	Aluminium alloy
Tool	C4LATBR200T040AP30
n (min ⁻¹)	25.000
V_f (mm/min)	5.600
f_z (mm/t)	0.056 max.
a_p (mm)	8 (Slotting) 22 (Finishing, Side milling)
Coolant	Emulsion, peripheral cooling



HIGH EFFICIENCY MACHINING OF ALUMINIUM ALLOY IMPELLERS

Material	Aluminium alloy
Tool	C4LATBR100T040AP20
n (min ⁻¹)	20.000
V_f (mm/min)	2.000
a_p (mm)	11
Coolant	Water based
Machine	Vertical M/C

Result: Excellent high depth of cut and feed



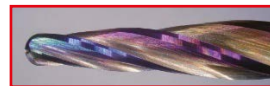
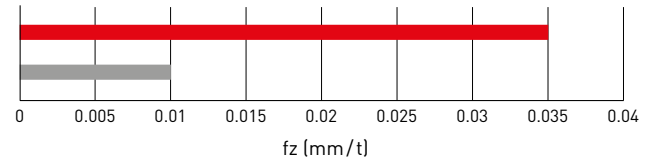
High durability



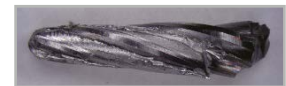
Breakage during machining

SLOTING WITH A LIMITED COOLANT FLOW RATE

Material	Aluminium alloy
Tool	DLC4LATBR100T040AP20 (R1×4°)
n (min ⁻¹)	20.000
f_z (mm/t)	0.005-0.035
a_p (mm)	10
Coolant	Wet cutting (emulsion), external coolant
Machine	Vertical M/C (BT30)
Result	Resistance to welding prevents tool breakage when coolant supply is limited due to the geometry of the workpiece



DLC4LATB

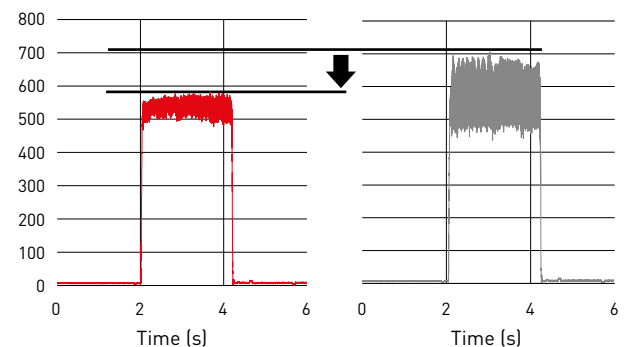


Non-coated Products

This test was performed with a limited coolant flow rate. If the coolant flow rate is sufficient, non-coated end mills can also be used.

COMPARISON OF CUTTING RESISTANCE WHEN SLOTTING

Material	Aluminium alloy
Tool	DLC4LATBR100T040AP20 (R1×4°)
n (min ⁻¹)	20.000
f_z (mm/t)	0.035
a_p (mm)	10
Coolant	Wet cutting (emulsion), external coolant
Machine	Vertical M/C (BT30)
Result	Cutting resistance has been reduced by up to 15 % compared to non- coated products



DLC4LATB

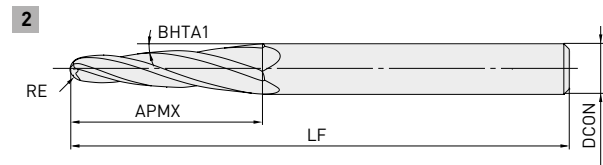
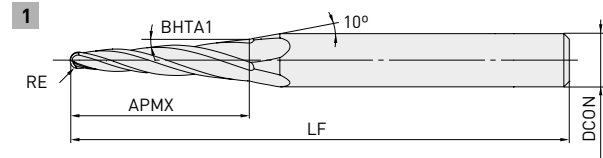


20°



CONICAL BALL NOSE END MILL, 4 CUTTING EDGES

N



RE < 2

± 0.010



BHTA1

± 5°



DCON = 6 DCON = 8

0 – 0.008 0 – 0.009

Order number	Stock	RE	APMX	LF	DCON	BHTA1	ZEFP	Type
DLC4LATBR050T040AP20	●	0.5	20	70	6	4°	4	1
DLC4LATBR100T040AP20	●	1	20	70	6	4°	4	1
DLC4LATBR150T040AP20	●	1.5	20	75	8	4°	4	1
DLC4LATBR200T040AP30	●	2	30	75	8	4°	4	2

Modified and special design taper ball end mills available. Please contact your Mitsubishi dealer for details.



C4LATB

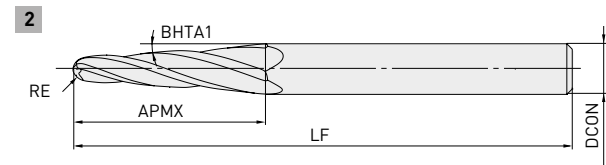
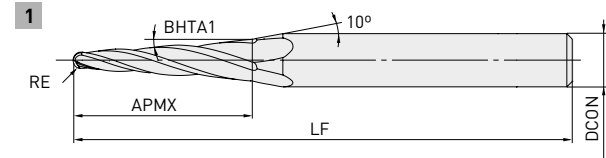


20°



CONICAL BALL NOSE END MILL, 4 CUTTING EDGES

N



RE < 2

± 0.010



BHTA1

± 5°



DCON = 6 DCON = 8

0 – 0.008 0 – 0.009

Order number	Stock	RE	APMX	LF	DCON	BHTA1	ZEFP	Type
C4LATBR050T040AP20	●	0.5	20	70	6	4°	4	1
C4LATBR100T040AP20	●	1	20	70	6	4°	4	1
C4LATBR150T040AP20	●	1.5	20	75	8	4°	4	1
C4LATBR200T040AP30	●	2	30	75	8	4°	4	2

Modified and special design taper ball end mills available. Please contact your Mitsubishi dealer for details.

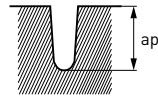


DLC4LATB / C4LATB

RECOMMENDED CUTTING CONDITIONS

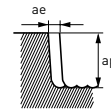
SLOTING

Material	RE	n	Vf	ap
N Aluminium alloy	R 0.5	20.000	600	10
	R 1	20.000	2.800	10
	R 1.5	20.000	4.000	10
	R 2	20.000	4.000	15



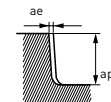
SIDE MILLING

Material	RE	n	Vf	ap	ae
N Aluminium alloy	R 0.5	20.000	2.000	15	0.75
	R 1	20.000	4.000	15	1.5
	R 1.5	20.000	5.200	15	2.25
	R 2	20.000	5.200	23	3



SIDE MILLING (FINISHING)

Material	RE	n	Vf	ap	ae
N Aluminium alloy	R 0.5	20.000	800	18	0.1
	R 1	20.000	2.000	18	0.2
	R 1.5	20.000	2.400	18	0.3
	R 2	20.000	2.400	27	0.3



Water-soluble cutting fluid is recommended. Down cutting is recommended for side milling.

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