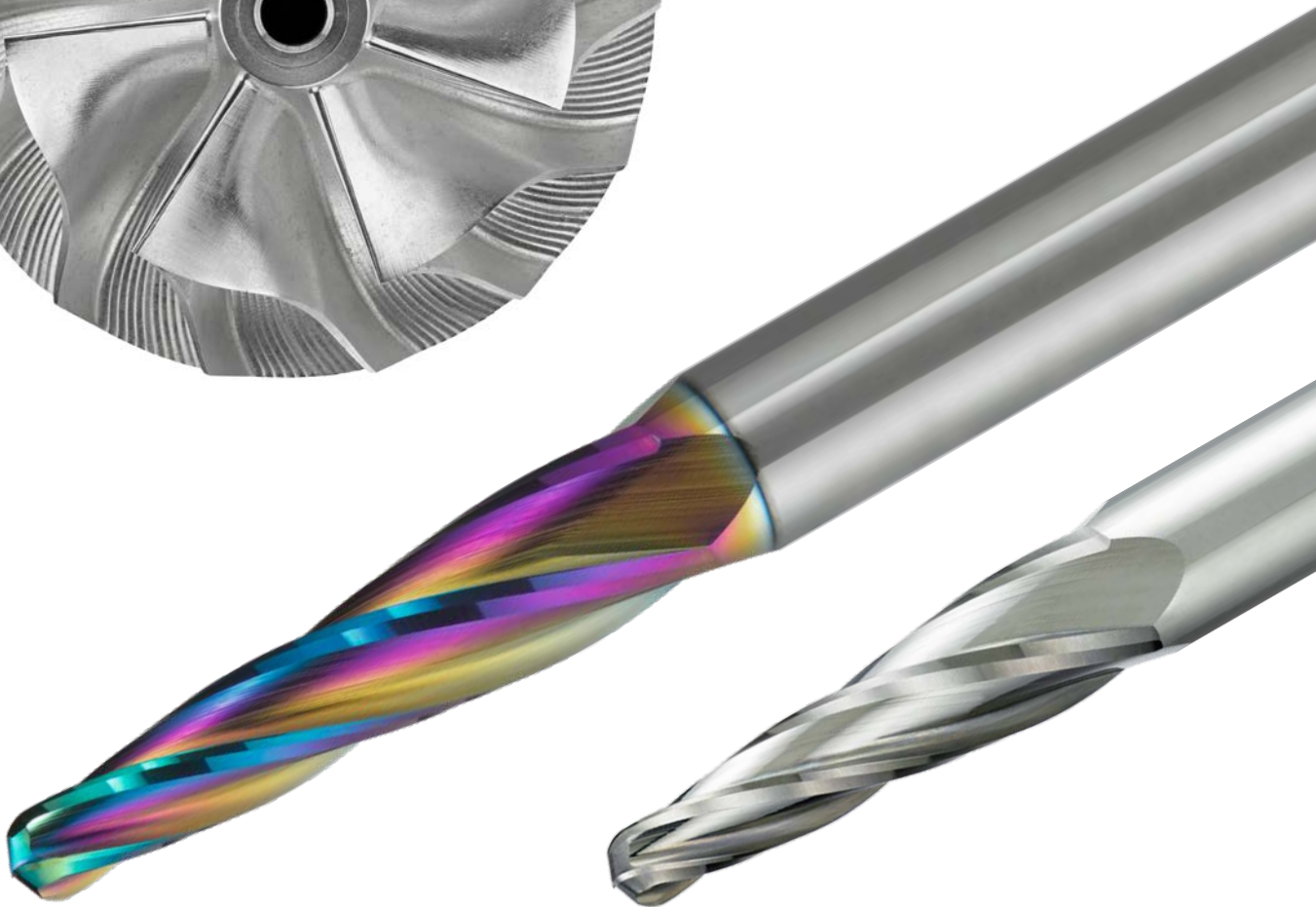
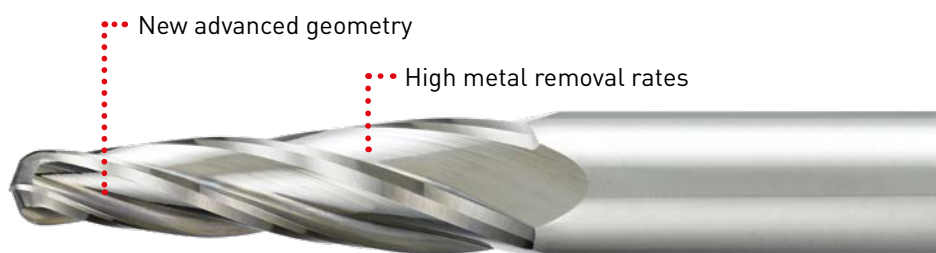
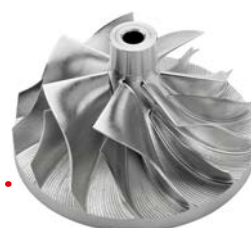


DLC4LATB / C4LATB

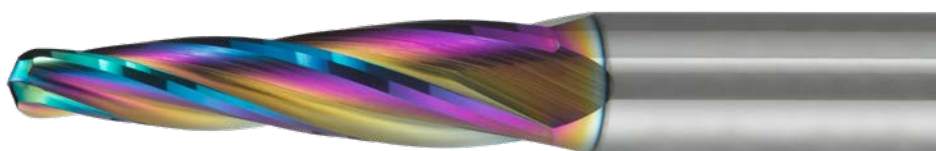
RIGID DESIGN AND NEW DLC COATED TYPE
FOR HIGH EFFICIENCY, RELIABLE MACHINING OF
ALUMINIUM IMPELLERS



HIGH EFFICIENCY MACHINING OF ALUMINIUM ALLOYS



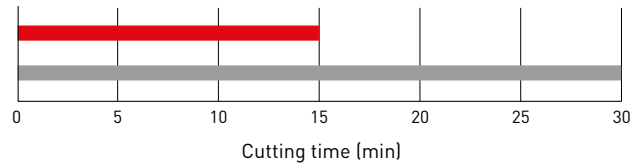
The uniquely developed DLC coating provides excellent welding resistance during high speed machining and when the coolant supply is reduced. Additionally, the low coefficient of friction reduces cutting resistance.



DLC4LATB / C4LATB

APPLICATION EXAMPLE / CUTTING PERFORMANCE

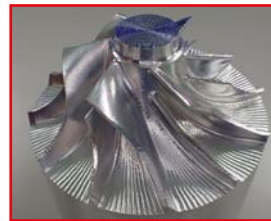
Material	Aluminium alloy
Tool	C4LATBR200T040AP30
n (min ⁻¹)	25.000
V_f (mm/min)	5.600
f_z (mm/t)	0.056 max.
a_p (mm)	8 (Slotting) 22 (Finishing, Side milling)
Coolant	Emulsion, peripheral cooling



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



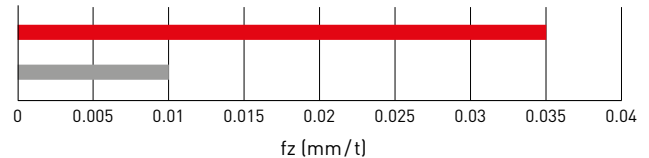
High durability



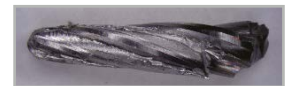
Breakage during machining

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

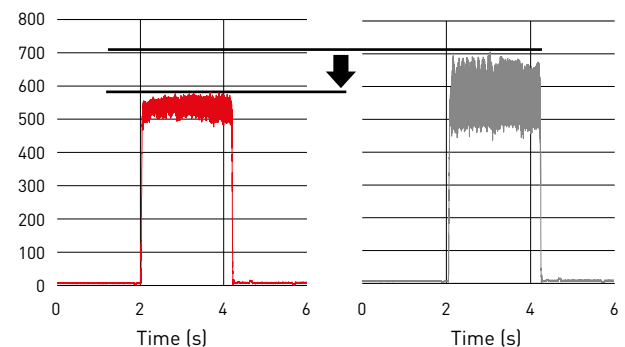


Non-coated Products

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 SLOTING

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

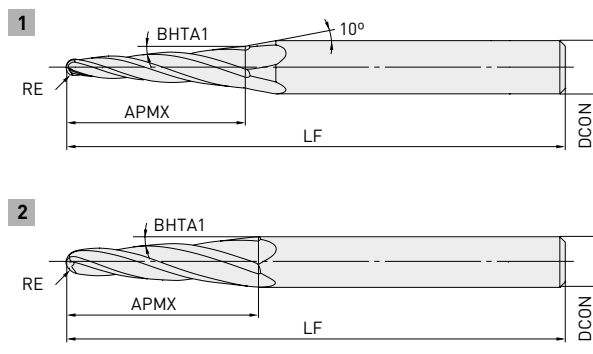


20°



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

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



C4LATB

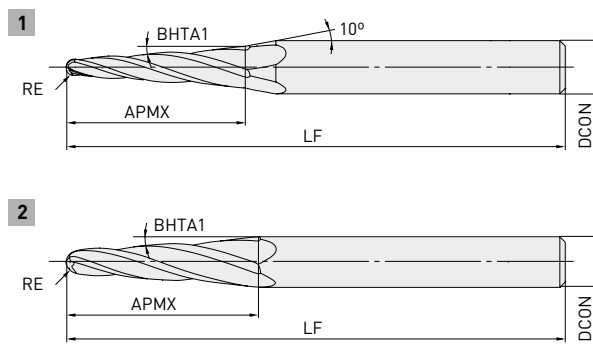


20°



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

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

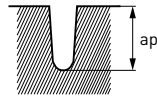


DLC4LATB / C4LATB

RECOMMENDED CUTTING CONDITIONS

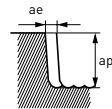
SLOTTING

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



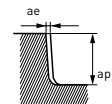
SIDE MILLING

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



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

MEMO

GERMANY

MMC HARTMETALL GMBH
Comeniusstr. 2 . 40670 Meerbusch
Phone +49 2159 91890 . Fax +49 2159 918966
Email admin@mmchg.de

U.K.

MMC HARDMETAL U.K. LTD.
Mitsubishi House . Galena Close . Tamworth . Staffs. B77 4AS
Phone +44 1827 312312
Email sales@mitsubishicarbide.co.uk

SPAIN

MITSUBISHI MATERIALS ESPAÑA, S.A.
Calle Emperador 2 . 46136 Museros/Valencia
Phone +34 96 1441711 . Fax +34 96 1443786
Email comercial@mmevalencia.es

FRANCE

MMC METAL FRANCE S.A.R.L.
6, Rue Jacques Monod . 91400 Orsay
Phone +33 1 69 35 53 53 . Fax +33 1 69 35 53 50
Email mmfsales@mmc-metal-france.fr

POLAND

MMC HARDMETAL POLAND SP. Z O.O
Al. Armii Krajowej 61 . 50-541 Wrocław
Phone +48 71335 1620 . Fax +48 71335 1621
Email sales@mitsubishicarbide.com.pl

ITALY

MMC ITALIA S.R.L.
Viale Certosa 144 . 20156 Milano
Phone +39 0293 77031 . Fax +39 0293 589093
Email info@mmc-italia.it

TURKEY

MMC HARTMETALL GMBH ALMANYA - İZMİR MERKEZ ŞUBESİ
Adalet Mahallesi Anadolu Caddesi No: 41-1 . 15001 35530 Bayraklı / İzmir
Phone +90 232 5015000 . Fax +90 232 5015007
Email info@mmchg.com.tr

www.mitsubishicarbide.com | www.mmc-hardmetal.com

DISTRIBUTED BY:

┌

┐

└

┘