

CUTTING TOOLS

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Application example

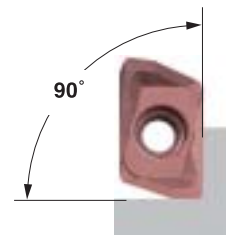
FULLCUT MILL PAT. **FCR**

■ **Bore** Dia. 38 with Helical milling



For carbon steel of C50, very smooth cutting with feed rate of 1,100mm/min and excellent squareness are achieved.

Fullcut Mill	BBT40-FCR20083-120
Insert	BRG200808(ACZ350S)
Work Material	C50(S50C) / Air blow
Cutting Speed V (m/min.)	150
Feed Rate f (mm/min.)	1,100
Axial DOC Ad (mm)	2mm × 3 times
Hole dia.	ø38

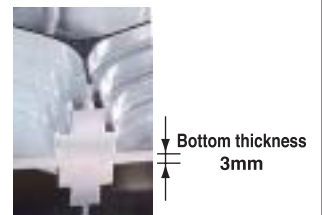


■ **Honeycombed** Pocket with Ramping

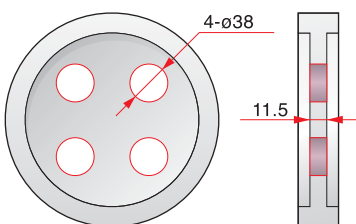


For low rigid workpiece with 3mm thickness clamped by a vise, feed rate of 4,300mm/min on both sides of the workpiece is achieved.

Fullcut Mill	BBT40-FCR20083-85
Insert	BRG200808(DS20)
Work Material	A2017 Duralumin / Air blow
Cutting Speed V (m/min.)	750
Feed Rate f (mm/min.)	4,300
Axial DOC Ad (mm)	6mm × 3 times
Radial DOC Rd (mm)	MAX. 20



■ **Helical milling**



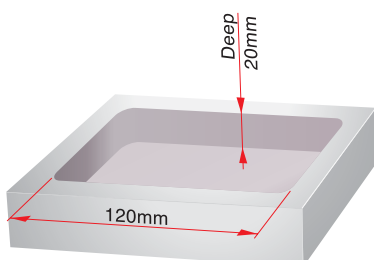
Stable helical milling with 4mm axial DOC on less-rigid workpiece.

Fullcut Mill	BBT40-FCR20083-120
Insert	BRG200808(ACZ350S)
Work Material	15CrMo5(SCM415)
Cutting Speed V (m/min.)	150
Feed Rate f (mm/min.)	480
Axial DOC Ad (mm)	4mm × 3times
Hole dia.	ø38

Compared to another manufacturer

Axial DOC → **1.3times**
Insert life → **2times**

■ **Ramping**



Example of use of BBT50-BBT40 Adapter.

An improved result is obtained compared to the product from another manufacturer.

Fullcut Mill	BBT50-BBT40-50 BBT40-FCR16082-120
Insert	BRG160808(ACZ350S)
Work Material	C50(S50C)
Cutting Speed V (m/min.)	120
Feed Rate f (mm/min.)	480
Axial DOC Ad (mm)	4mm × 5times

Compared to another manufacturer

No chatter even at higher resistance corner.
Smooth chip evacuation eliminates re-cutting of the swarf and edge chipping of the inserts.

Application example

FULLCUT MILL PAT. FCM

Slot Milling



Only the FULLCUT MILL was capable of achieving this data in a No.40 spindle taper machine.

Fullcut Mill	BBT40-FCM32113-85
Insert	ARG321104(ACP300)
Work Material	C50(S50C)
Cutting Speed V (m/min.)	150
Feed Rate f (mm/tooth)	0.12
Axial DOC Ad (mm)	9

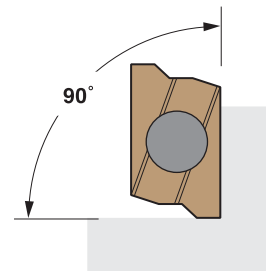


Edge Milling



Excellent perpendicularity is achieved.

Fullcut Mill	BBT40-FCM32113-85
Insert	ARG321104(ACP300)
Work Material	C50(S50C)
Cutting Speed V (m/min.)	200
Feed Rate f (mm/tooth)	0.15
Axial DOC Ad (mm)	11
Radial DOC Rd (mm)	5



Face Milling



Finishing surface roughness was Rz=2.53 at V=200, F=0.15 cutting data.

Fullcut Mill	BBT40-FCM50115-70
Insert	ARG401104(ACP300)
Work Material	C50(S50C)
Cutting Speed V (m/min.)	200
Feed Rate f (mm/tooth)	0.15
Axial DOC Ad (mm)	1
Radial DOC Rd (mm)	30

	Surface Roughness Rz
BIG BIG DASHOWA	2.53
Manufacturer A	3.75
Manufacturer B	4.32

Material of Low Machineability



High efficiency and stable milling (F=1,140mm/min.) is achieved.

Fullcut Mill	ST25-FCM25093-120
Holder	BBT50-MEGA25D-105
Insert	ARG250904(ACZ350S)
Work Material	SUS304 Stainless steel
Cutting Speed V (m/min.)	150
Feed Rate f (mm/tooth)	0.2
Axial DOC Ad (mm)	9
Radial DOC Rd (mm)	3



C-CUTTER mini

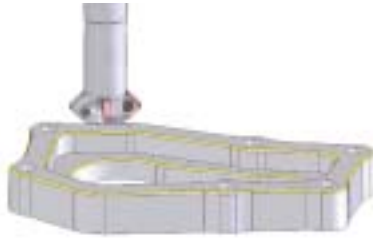
Front & Back chamfering for Stainless



Material : X5CrNi18-9
Chamfer : 3mm x 45°
Feed : 0.1mm/tooth

	Competitor's tool (with TiAlN coated carbide insert)	C-CUTTER mini (ST20-C2232-45B-50)
Chamfering dia.	ø30	ø28
Number of tooth	1	4
Cutting speed(m/min)	140	180
Spindle speed(min ⁻¹)	1,490	2,050
Feed(mm/min)	149	819
Result	5 times better Cutting efficiency	

Chamfering for Aluminum



Material : Al-Si7Mg(Fe)
Chamfer : 0.5mm x 45°
Feed : 0.1mm/tooth

	Competitor's tool	C-CUTTER mini (ST12-C1116-45B-25)
Chamfering dia.	ø40	ø12
Number of tooth	3	4
Cutting speed(m/min)	200	600
Spindle speed(min ⁻¹)	1,590	15,920
Feed(mm/min)	477	6,370
Result	13 times better Cutting efficiency	

Front & back chamfering of starting holes for M8 tapping



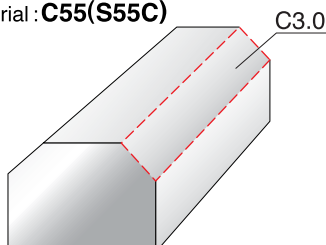
Material : FC250
Tapped hole : ø6.6
Chamfering dia. : ø8.4

	Competitor's tool (with Non-coated carbide insert)	C-CUTTER mini (ST10-CM08-45B-19)
Cutting speed(m/min)	30	150
Spindle speed(min ⁻¹)	1,140	5,680
Feed per tooth(mm/rev)	0.05	0.1
Feed(mm/min)	57	568

C-CUTTER

C3 traverse chamfering

Workmaterial : C55(S55C)



High cutting parameter was achieved without chattering.

C-CUTTER	ST25-C1040
Insert Model	CW1909A
Spindle speed	3,000 min ⁻¹
Feed	1,800mm/min