

Face Milling Cutter for High Efficiency Machining of Cast Irons

# AOX445

The way for a new age of machining for gray cast iron is cleared by AOX cutter used octagonal negative inserts dedicated coated CBN grade.



## Face Milling Cutter for High Efficiency Machining of Cast Irons

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## Features

### Achieving high machining efficiency for gray cast iron with high speed conditions

- High machining efficiency can be achieved with the use of high cutting speeds, 800-1500m/min for gray cast iron by employing dedicated coated solid CBN grade.
- AOX can be used for rough through to finish machining by employing no cartridge attachment and tough CBN grade insert designed for high accuracy.

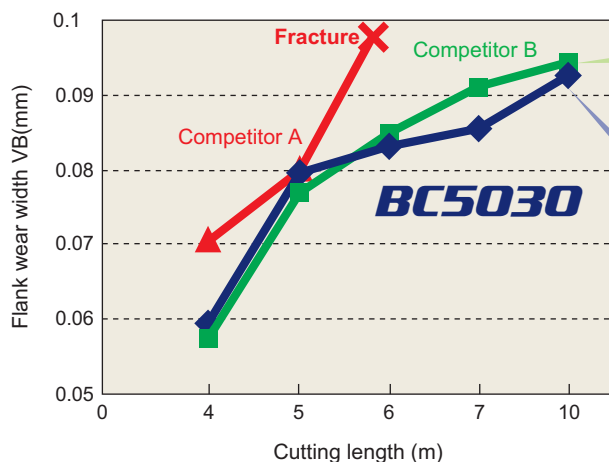
### Unique octagonal negative insert offers the use of 16 corners

- Achieving high cost performance with the octagonal negative insert, offering the use of 16 corners. (when the depth of cut is under 3mm. When the depth of cut is over 3mm to 8mm can use 8 corners.)
- Employing the new coated solid CBN grade BC5030. It combines wear resistance with fracture toughness required for high-efficient machining with high cutting speed, and it can be easily placed and used.

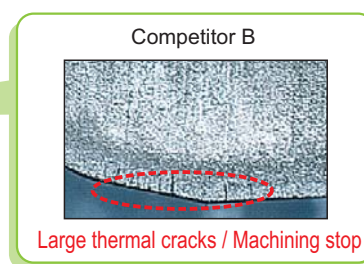


## Cutting performance

Exhibiting long tool life under the high cutting speed conditions, ex. 1500m/min.



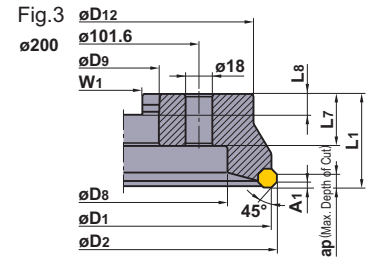
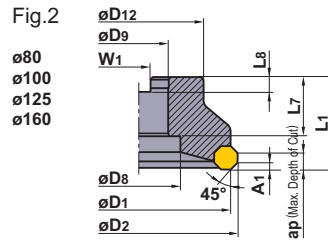
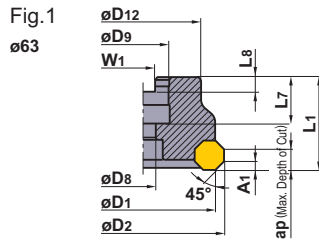
<Cutting conditions>  
 Work material : JIS FC300  
 Cutting speed : 1500m/min  
 Feed per Tooth : 0.15mm/tooth  
 Depth of Cut : 2.0mm  
 Axial Depth of Cut : 100mm  
 Dry cutting  
 \*Single cutting edge



## Arbor type



C H :45°  
A.R : -5°      T : -9° - -6°  
R.R : -9° - -6°      I : -5°



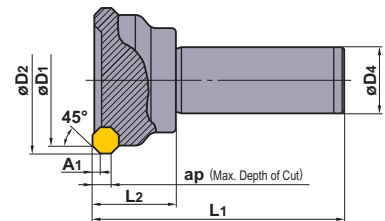
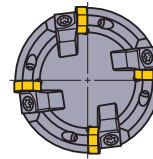
Right hand tool holder shown.

Light Alloy	Cast Iron	Carbon Steel Alloy Steel	Stainless Steel	Hardened Steel
	➔			

Type	Order Number	Stock		Number of Teeth	Dimensions (mm)								Tool Weight (kg)	Max. Depth of Cut (mm)		Max. Allowable Spindle Speed (min <sup>-1</sup> )	Figure	
		R	L		D1	D2	L1	D9	L7	D8	D12	W1		L8	A1			ap
Standard	AOX445-063A04R/L	●	□	4	63	70.8	40	22	20	11	50	10.4	6.3	0.6	3	8	12000	1
	R/L08006C	●	□	6	80	87.8	50	25.4	26	38	60	9.5	6	1.2	3	8	11000	2
	R/L10008D	●	□	8	100	107.8	50	31.75	32	45	70	12.7	8	1.8	3	8	9300	2
	R/L12510E	●	□	10	125	132.8	63	38.1	35	60	80	15.9	10	3.0	3	8	8300	2
	R/L16012F	●	□	12	160	167.8	63	50.8	38	80	100	19.1	11	4.9	3	8	7200	2
	R/L20012K	□	□	12	200	207.8	63	47.625	35	140	175	25.4	14.22	8.7	3	8	6400	3

Note) Offer the use of 16 corners (when the depth of cut is under 3mm)  
The cut up to max. 8mm is possible when machining variable cutting depth like the pouring gate.

## Shank type



Right hand tool holder shown.

Type	Order Number	Stock		Number of Teeth	Dimensions (mm)					Tool Weight (kg)	Max. Depth of Cut (mm)		Max. Allowable Spindle Speed (min <sup>-1</sup> )
		R	L		D1	D2	L1	D4	L2		A1	ap	
Standard	AOX445R/L503S32	●	□	3	50	57.8	125	32	40	1.1	3	8	13000
	R/L634S32	●	□	4	63	70.8	125	32	40	1.4	3	8	12000

Note) Offer the use of 16 corners (when the depth of cut is under 3mm)  
The cut up to max. 8mm is possible when machining variable cutting depth like the pouring gate.

## Spare Parts

Order Number	Wedge	Clamp Screw	Wrench
AOX445	CWAOX445N	LS15T	TKY25T

\* Clamp Torque (N · m) : LS15T=8.0

## Inserts

Order Number	Class	CBN	Geometry
		BC5030	
SL-ONEN120404ASN	E	●	

● : Inventory maintained. (10 inserts in a case)      □ : Non stock, produced to order only.

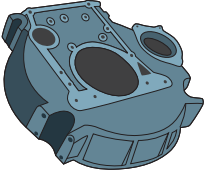
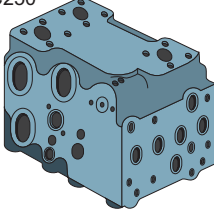
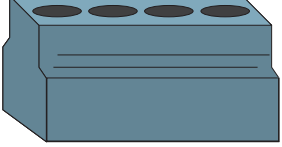
## Recommended Cutting Conditions

Work Material	Tensile Strength	Insert Grade	Cutting Speed (m/min)	Feed per Tooth (mm/tooth)
K Gray cast iron	≤200MPa	BC5030	1000 (800-1500)	0.1 (0.05-0.15)
	250-350 MPa			

Note) Please be sure to use AOX under dry condition.

# AOX445

## Application Examples

		AOX445R10008D	AOX445R08006C	AOX445R10008D
Work material		JIS FC250 	JIS FC250 	JIS FC250 
Component		Housing case	Mission valve	Cylinder block
Cutting Conditions	Cutting Speed (m/min)	1200	1000	1000
	Feed per Tooth (mm/tooth)	0.1	0.13	Roughing : 0.22 Finishing : 0.1
	Table Feed (mm/min)	3057	3000	Roughing : 5600 Finishing : 2546
	Axial Depth of Cut (mm)	2.8	1.5	Roughing : 2.0 Finishing : 0.4
	Radial Depth of Cut (mm)	70	-	80
Coolant		Dry	Dry	Dry
(mm)		≤0.04mm	≤0.04mm	≤0.04mm
Results		Increase in efficiency (table feed increase of 4 times) Tool life increase by 10 times Present tool has std inserts & wiper, AOX one insert geometry easier tool management.	Increase in efficiency (table feed increase of 2.4 times) Tool life increase by 6 times, No. of cutting edges increased by 2 times	Present tool had to run 2 passes by rough and finish, AOX can bring together that 2 operation. Increase in efficiency (table feed increase of 4 times) Tool life increase by 8 times more at finish. Present tool has std inserts & wiper, AOX one insert geometry easier tool management.

- Please consult these case example, and adjust cutting condition in tune with machine tool and work cramping.
- For achieving high-efficient machining, recommend using the machine with high spindle power.  
ex; the machine from 11 to 22kW of spindle power when using 100mm of diameter of AOX cutter.

**For Your Safety**

●Don't handle inserts and chips without gloves. ●Please machine within the recommended application range and exchange expired tools with new ones in advance of breakage. ●Please use safety covers and wear safety glasses. ●When using compounded cutting oils, please take fire precautions. ●When attaching inserts or spare parts, please use only the correct wrench or spanner. ●When using rotating tools, please make a trial run to check run-out, vibration and abnormal sounds etc.

## MITSUBISHI MATERIALS CORPORATION

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