

M5C90 Aluminum Cutter

One-shot face milling



The challenge

Roughing and finishing of aluminum parts is an expensive and time-consuming process. It requires two different setup processes, lots of coolant, and enough cutting inserts in stock for each tool. In addition, poor quality finishes, burring, and irregular tool wear leading to shortened tool life are common occurrences during the process. How can you shorten your cycle times, improve surface finish and increase savings?

The solution:

M5C90 – a new concept combination milling cutter

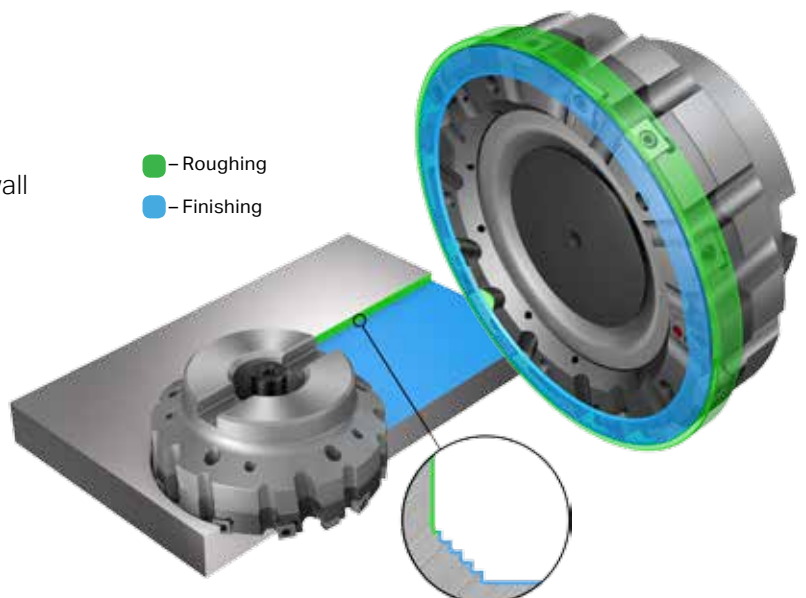


Roughing and finishing in one tool

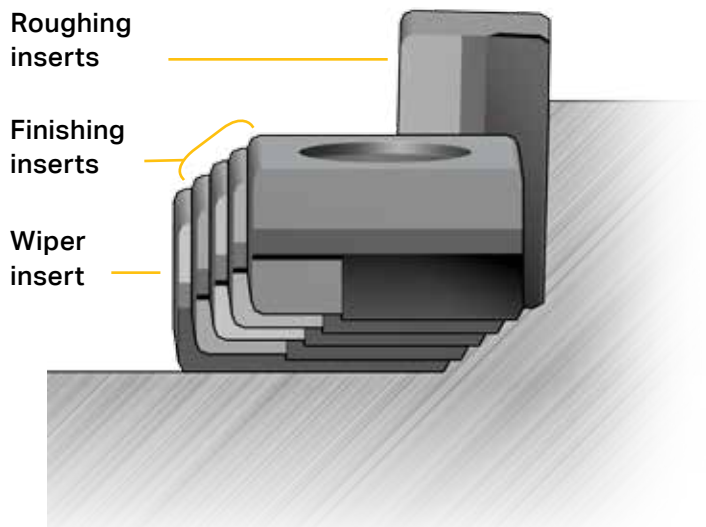
Combining M5B90 with a tangential roughing cutter on the outer diameter, M5C90 provides both roughing and finishing in the same tool. It smoothly and swiftly machines parts without burrs, scratches or breakages, resulting in high feed rates and time and cost savings.

Suitable for use on:

- Cylinder heads
- Cylinder blocks
- All aluminum parts within wide cutter engagement (not applicable on thin-wall part)



Advantages of M5C90



The unique radial and axial positioning of the roughing and finishing inserts provides outstanding surface quality in only one operation. Shown here is a custom design with 10 roughing inserts, four finishing inserts, and one wiper.

Outstanding surface finish

M5C90 provides the same outstanding finishing quality as M5B90. It contains roughing and finishing inserts, one of which is a wiper. This wiper works differently than the cutting inserts and ensures excellent surface quality on every cut, even at high feed rates.

Greatly extended tool life

The unique positioning of the M5C90 inserts into the chip seat delivers a broaching-like effect during operations, resulting in burr-free milling. This prevents uneven tool wear and leads to a much superior tool life, even at high feed rates.

No setup time

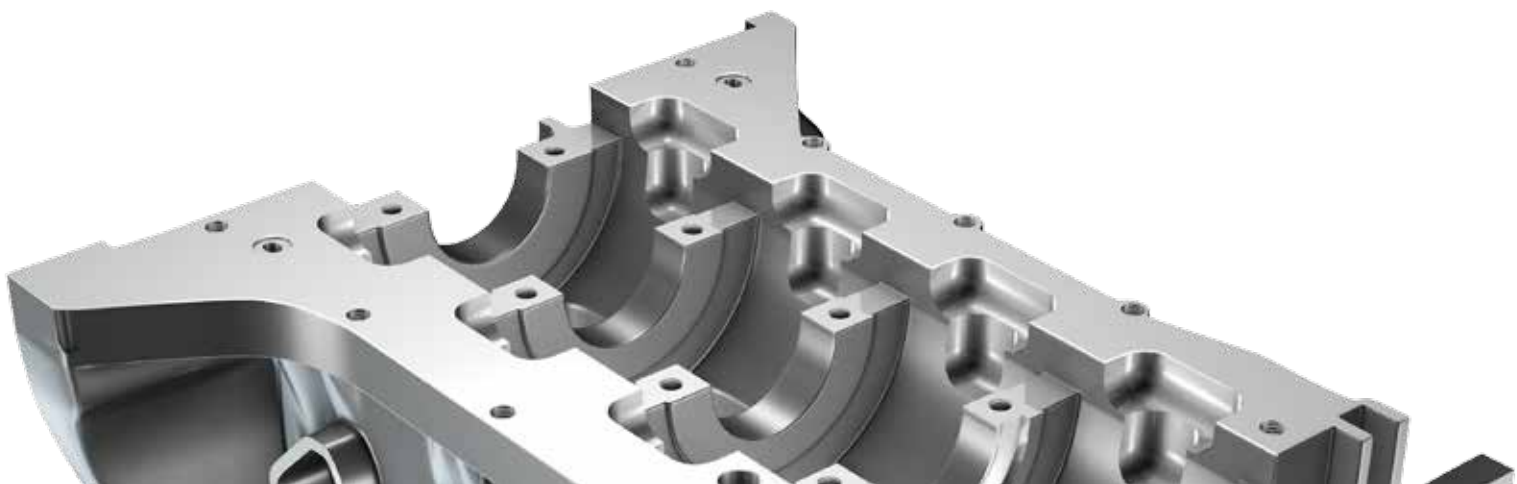
Since the M5C90 cutter body is custom-made to your specifications, and the standard inserts are fixed, no adjustment or indexing is needed. M5C90 arrives ready to use without requiring any setup or additional roughing cutter. This means higher feed rates, shorter cycle times and greater productivity.

MQL coolant

M5C90 is suitable for both minimum quantity lubrication and flood applications. Replacing the need for two different tools, and using less coolant per tool, makes M5C90 both an environmental and cost-efficient choice.

Low weight cutter body

M5C90 is constructed with either a steel body or an aluminum and steel body to meet hard-wearing, yet low weight requirements.



Customer case

Component: Brake system body valve

Material: AlSi12Cu1

Operation: Direct finishing

+18 months
in the machine
and still
counting...

	Sandvik Coromant
Tool	M5C90 (Engineered tool)
Insert	5B90N-090504E-NL 1010 (outer diameter)
	5B90N-0905H-ZS2-NW CD07 (wiper)
	5B90-0905H-PS2-NL CD07 (peripheral)
Z_n	Outer diameter 10 carbide inserts
	Inner diameter 4 + 1 wiper
n , rpm	8,000
v_c , m/min (ft/min)	4,021 (13,192)
v_f , mm/min (in/min)	20,000 (787)
f_z , mm/z (in/z)	0.25 (0.010)
a_p , mm (inch)	2 (0.079)
a_e , mm (inch)	140 (5.51)
MRR cm ³ /min (in ³ /min)	5,600 (342)

! Tool life not yet determined. The tool is still going strong after 18 months in the machine.



For more information, please contact your local Sandvik Coromant representative.

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