



SANDVIK
Coromant

M5B90 Aluminum Cutter

Face milling



The challenge

Aluminum is a notoriously difficult material to cut, and using conventional milling cutters often results in poor quality finishes and burring. These cutters also require lengthy setup processes and are limited by irregular tool wear, shortened tool life and long cycle times.

The solution:

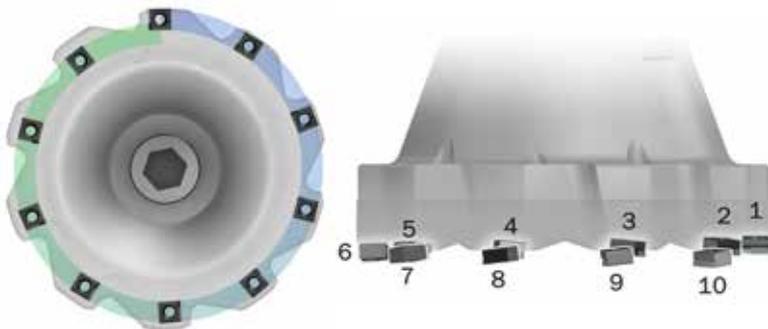
M5B90 – a new type of face milling cutter



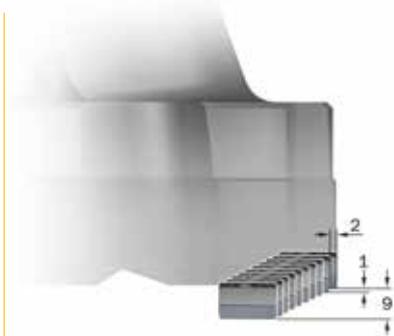
Stable and burr-free face milling

M5B90 is more like a rotary broach than a milling tool. It comprises a single, custom-made tooth containing several standard inserts. Its unique axial and radial positioning of the inserts allows chips to be cut efficiently without any burring.

Burring is often unavoidable with conventional milling cutters due to the depth of cut. M5B90 inserts each remove only the depth of cut per insert, which is an effective radial step of 1/100 mm. As a result of this minute stock removal with each insert, M5B90 results in burr-free milling.



The unique radial and axial positioning of M5B90 inserts. Shown here is a custom design with nine inserts and one wiper.



Each radial step is minute, resulting in no chips forming and consequently no burring.

Advantages of M5B90



Outstanding surface finish

M5B90 includes only a small number of 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.

High feed

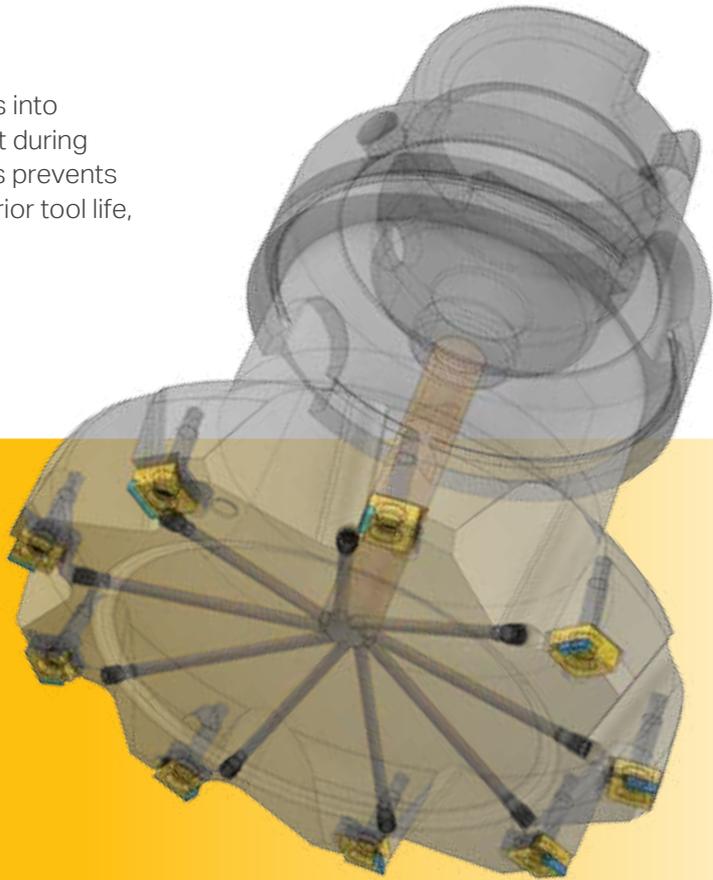
Since the M5B90 cutter body is custom-made to your specifications and the standard inserts are fixed, no adjustment or indexing is needed. M5B90 arrives ready to use without requiring any setup. This means higher feed rates, shorter cycle times and greater productivity.

Greatly extended tool life

The unique positioning of the M5B90 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.

MQL coolant

M5B90 is suitable for both minimum quantity lubrication and flood applications, making it both an environmental and cost-efficient choice.



Low weight cutter body

M5B90 is constructed with either a steel body or an aluminum and steel body to meet hard-wearing, yet low weight requirements.

Customer case

A manufacturer of cylinder heads for passenger car engines asked Sandvik Coromant for help. The machining process was unstable, and the manufacturer had problems with burrs. Another problem was the unpredictable insert tool life, which depended on the cartridge adjustments that differed slightly from setup to setup.

Challenge

Provide a stable and burr-free machining process with predictable insert tool life.

Solution

M5B90 offered a smooth finishing operation with predictable wear and no burrs. Only very thin chips are produced by the cutter, which are easily removed during the cutting process. This avoids damage to the component face.

	Existing cutter	M5B90
Number of teeth, Z_n	16	9
Cutting speed, v_c m/min (ft/min)	3,140 (10,302)	3,800 (12,467)
Spindle speed, n r/min	5,000	6,000
Feed rate, v_f mm/min (in/min)	8,280 (326)	9,000 (354)
Depth of cut, a_p mm (inch)	0.5 (0.020)	0.5 (0.020)
Tool life, min.	30,000 components on average	45,000 components on average

**+15,000
components!**



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

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