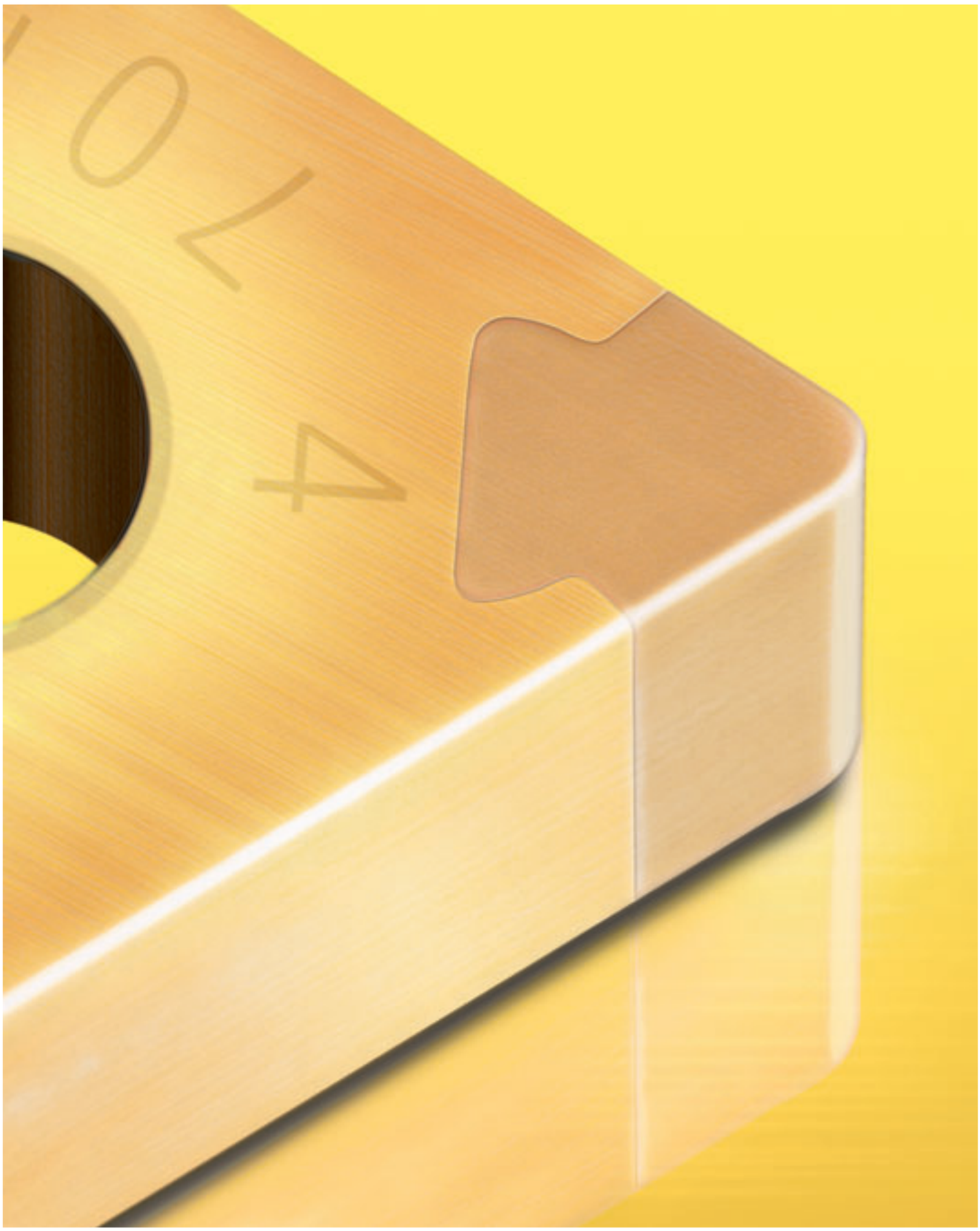
New Cubic Boron Nitride grade CB7015 shortens cycle times

SANDVIK Coromant

Built-in security from Safe-Lok technology



New CB7015 for finish turning of case hardened transmission components

Switching from grinding to turning of hardened surfaces can make significant savings. The introduction of the new range of CBN inserts, developed for productive finish turning of high quality surfaces, make it possible to take the next step in this area.

CB7015 is a unique combination of ability to work at a high metal removal rate (Q), predictability from the new grade and reliability from the new Safe-Lok design. This contributes, in all aspects, to meeting the overall goal of the mass production industry – to increase quality and shorten cycle times.

Increased speed (v_c) capability

CB7015 is a polycrystalline CBN grade of fine grain size with a unique ceramic binder.

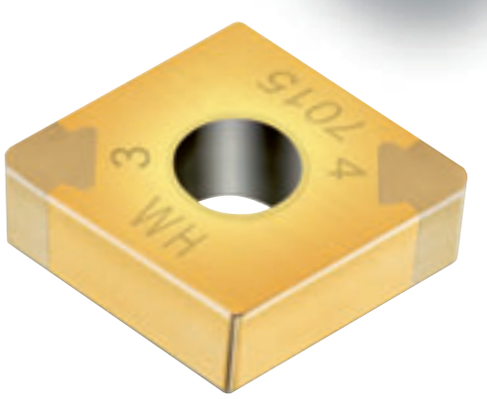
The key to improved performance at high cutting speeds, when machining continuous to light interrupted cuts, lies in the ability of wear to develop slowly in a controlled way, and at high temperatures.

Increased feed (f_n) with Sandvik Coromant wiper technology

Machine at high feed and still obtain the process reliability with our patented radius configuration that is less sensitive to misalignment than conventional wipers.

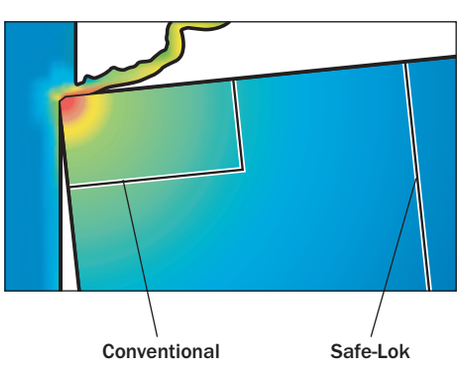
Increased cutting depth (a_p) with large, solid CBN corners

Large cutting depths possible when machining up to shoulders, undercuts and in other profiling operations.



Dual edge identification system

To simplify detection of used edges, the inserts have a thin, golden TiN coating and each cutting edge is permanently marked with an identifying number.



Safe-Lok multi-corner technology

Mechanically interlocked CBN corners brazed far from the hot cutting zone provides strength and security, superior to conventional tip design.

Buy a cutting tool and get the expertise in addition

Sandvik Coromant can offer you analyses and advise on your machining operation – from the choice of tools to the choice of methods, with the ultimate aim of reducing your final component costs which is of great importance within the mass production industry.

Working together, we set up priorities and objectives, test solutions, analyse the end results and agree upon future actions.

Success stories – cycle times reduced by 50% and more

Turning vs. grinding

Component: Pinion shaft, 59-62 HRc

Previous manufacturing method

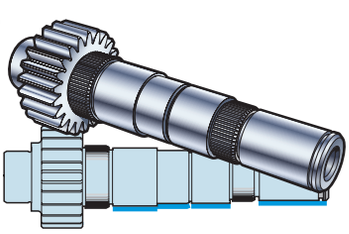
- rough-, finish- and groove grinding done on separate machines

New manufacturing method

- 4 axis CNC lathe

Semi-finishing
Ceramic insert
Cutting speed v_c = 200 m/min
Feed f_n = 0,18 mm/r
Depth of cut a_p = 0,08 mm

Finishing
CBN, Multi corner insert
Cutting speed v_c =160 m/min
Feed f_n = 0,08 mm/r
Depth of cut a_p = 0,05 mm



Result:

- **1 CNC lathe replaced 3 grinding machines.**
- **Cycle time reduced by up to 80%.**

Wiper vs. conventional geometry

Component: Gear, 58 HRc

Previous cutting data

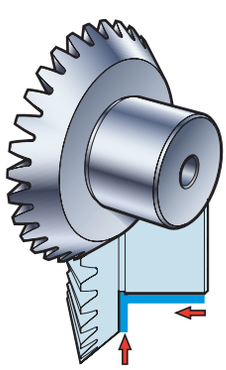
- CBN

Cutting speed v_c = 230 m/min
Feed f_n = 0,08 mm/r
Depth of cut a_p = 0,3 mm

New cutting data

- CBN, Multi corner insert with WH wiper

Cutting speed v_c = 230 m/min
Feed f_n = 0,25 mm/r
Depth of cut a_p = 0,3 mm

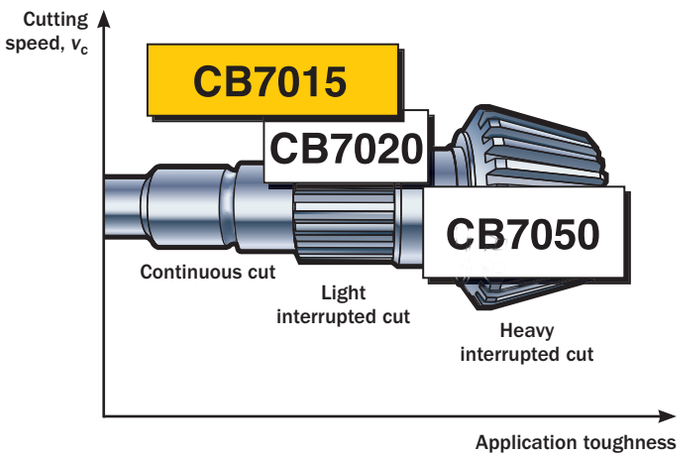


Result:

- **Cycle time reduced by 50%.**
- **Cost per part reduced by 42%.**

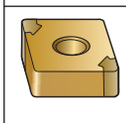
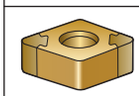
Application area

First choice when turning high quality surfaces of case hardened steels (58-65 HRc).
The new CB7015 inserts combine high performance and reliability for materials of high hardness.



Insert programme – grade CB7015

Grade

Negative inserts – T-MAX P		l_a	Ordering code	H CB 7015
		2,8	CNGA 12 04 04 T01030AWH	★
		2,7	12 04 08 T01030AWH	★
		2,8	CNGA 12 04 04 S01030A	★
		2,7	12 04 08 S01030A	★
		2,7	12 04 12 S01030A	★
		3,8	DNGA 15 04 04 S01030A	★
		3,4	15 04 08 S01030A	★
		3,0	15 04 12 S01030A	★
For dimensions, see code key in Turning tools catalogue C-1000:8, page A 10.				H15

Ordering example:
10 pieces CNGA120404T01030AWH7015

Cutting data recommendations

ISO H CMC No.	Cutting tool material	Operation	Cutting speed, v_c m/min (50 100 150 200 250)	Feed, f_n mm/r (0,1 0,2 0,3 0,4)	Depth of cut, a_p mm (0,2 0,5 1,0 1,5)
04.1 HARDENED STEEL	**CB7015** Cubic boron nitride	**FINISHING** **Continuous to light interrupted cuts**			

Coolant: CB7015 is capable of dry machining. Coolant may be used during continuous cuts but is not recommended during interrupted cuts.

Head office: AB Sandvik Coromant, SE-811 81 SANDVIKEN, SWEDEN

E-mail: info.coromant@sandvik.com
www.coromant.sandvik.com

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