

# New steel turning grades

GC4425 and GC4415

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Today, depending on the market demand, reducing production cost or increasing output are top priorities for making steel turning operations more efficient. Common challenges often involved are increasing metal removal rates, reducing cycle times and minimizing material waste, but can also include optimizing tool inventory and operating at lower capacity without compromising process security.

Sandvik Coromant offers a complete, market-leading steel turning offer, developed to help your business thrive and production reach new levels. The new-generation steel turning grades are enhanced in every aspect, from tool life to wear and heat resistance, offering secure, efficient and productive steel turning.

## Toughness and wear resistance combined

New substrates with a unique combination of good toughness and resistance against plastic deformation offer reliable performance. The cobalt-enriched surface gradient adds to security.

## New post-treatment

Improved post-treatment lifts the performance in intermittent cutting operations. The bright, yellow top TiN coating on the insert flank allows for easy wear detection.

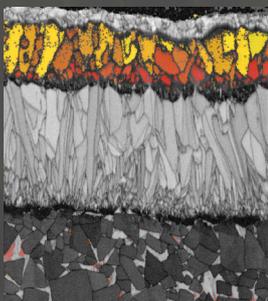


## Second-generation Inveio® technology

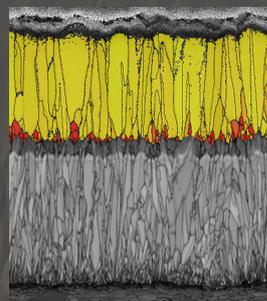
With the introduction of second-generation Inveio® technology, the benefits of unidirectional coating have been further developed. Improved crystal orientation makes for even more consistent performance and significantly improved wear resistance and tool life.

## Sustainable steel turning

An average of 25% tool life increase combined with reliable and predictable performance helps minimize both insert and workpiece material waste, necessary preconditions for sustainable machining. Moreover, the carbide substrate contains a high proportion of recycled carbide material, making it one of the most environment-friendly grades.



Conventional CVD alumina coating with random crystal orientation.



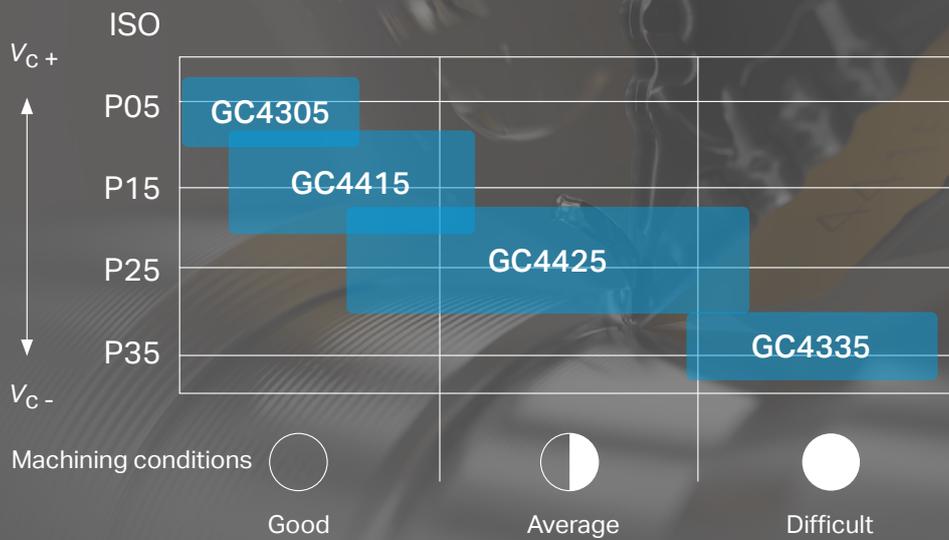
With Inveio®, every crystal in the alumina coating is lined up in the same direction, creating a strong barrier towards the cutting zone.



Inveio®

Uni-directional crystal orientation

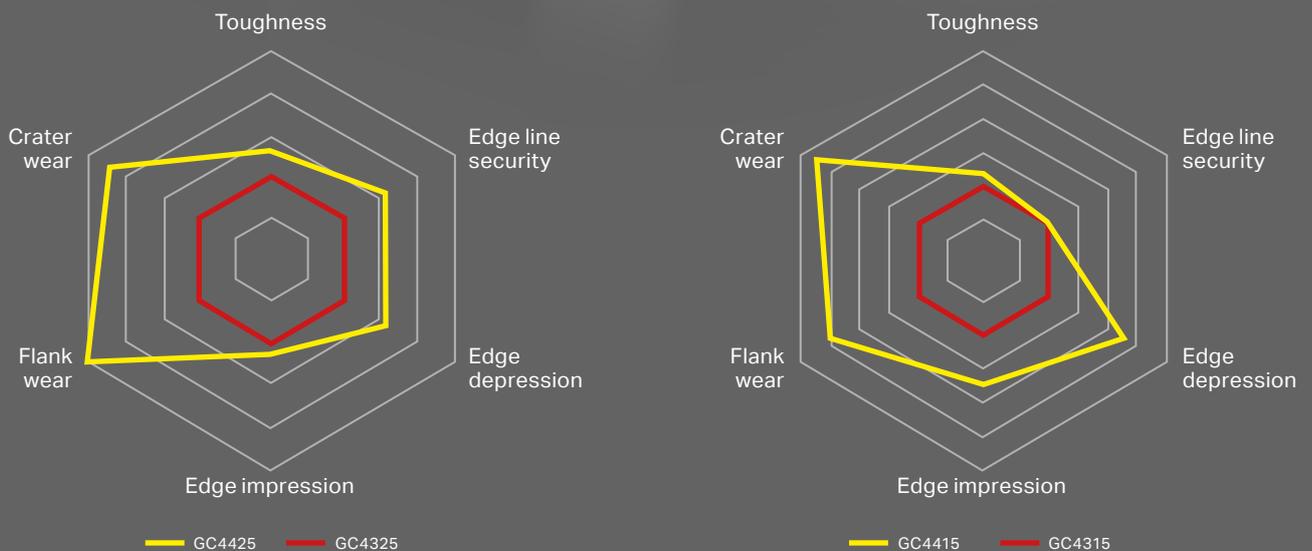
## First choice for steel turning



First-choice grade GC4425 delivers improved wear resistance, heat resistance and toughness, significantly expanding the application range.

Grade GC4415 complements GC4425 with enhanced performance when more heat resistance is needed. It allows for high cutting speeds and long times in cut when machining in stable conditions.

## Refined in every aspect



## Application

- Low-alloyed and unalloyed steels
- Suitable for mass and batch production
- External and internal machining
- Finishing to roughing in applications with continuous cuts and light interruptions



## Performance case: Automotive

**Component:** Main shaft

**Material:** Forged, P1.1.Z.AN (SAE 1026), 172 HB

**Operation:** Continuous external turning, roughing and semi-finishing



### Cutting data

$v_c$ , m/min (ft/min) 192 (630)  
 $f_n$ , mm/rev (in/rev) 0.32 (0.013)  
 $a_p$ , mm (inch) 1.2 (0.047)

	Competitor	Sandvik Coromant
Insert, ISO (ANSI)	-	TNMG160412 (TNMG 333) -PR
Grade	-	GC4425
<b>Tool life, pcs</b>	<b>150</b>	<b>270</b>

**Result:** The competitor insert had large crater wear, while GC4425 produced 80% more pieces with stable and predictable flank wear.

## Performance case: General engineering

**Component:** Pressure roller

**Material:** Machined, P1.4.Z.AN (19MnV6), 205 HB

**Operation:** Continuous external axial turning, semi-finishing



### Cutting data

$v_c$ , m/min (ft/min) 200 (656)  
 $f_n$ , mm/rev (in/rev) 0.4 (0.016)  
 $a_p$ , mm (inch) 4.0 (0.157)

	Competitor	Sandvik Coromant
Insert, ISO (ANSI)	-	CNMG120408 (CNMG 432) -PR
Grade	-	GC4425
<b>Tool life, pcs</b>	<b>12</b>	<b>18</b>

**Result:** The competitor insert wore out due to plastic deformation. GC4425 worked 50% longer, with stable and predictable wear.