

Press information

KYOCERA Cutting Tool Inserts in New Coated Carbide Grades Improve Cast Iron Machining **New CA3 Series and K Series chipbreakers maximize performance from rough cutting to finishing**

Kyoto, Japan / Neuss, Germany, November 8, 2016 - Kyocera Corporation (President: Goro Yamaguchi) announced today that it has developed a new line of indexable cutting tool inserts to improve cast iron machining. Made from new grades of CVD coated-carbide materials, Kyocera's CA3 Series and chipbreaker K Series inserts offer significant improvements in machining cast iron components for automobiles, industrial machinery and many other heavy-duty applications. The new inserts address rising demand for metalworking tools that can deliver stable machining performance over a wide range of cutting conditions.

The CA3 Series uses a newly developed CVD coating with a pink-gold finish over a carbide base metal. Kyocera has improved the adhesion strength of the coating layers to ensure longer tool life and consistent processing of cast iron. Further, newly designed blade-edge shapes on the new chipbreakers maximize performance even under high-load machining.



Carbide inserts with new coatings and chipbreaker geometries (clockwise top left: KQ, KG, KH)

Three types of new materials and chipbreakers are available to address all aspects of cast iron machining, from rough cutting to finishing. Kyocera will continue to develop optimal insert grades to maximize users' productivity in diverse cutting conditions.

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Product Overview

Product	New Material: CA3 Series		
	CA310	CA315	CA320
Total Lineup (Insert Types)	206 *	206 *	206 *
Recommended application	Gray cast iron (first choice)	Ductile cast iron (first choice)	Ductile / gray cast iron (to optimize stable processing)
Production location	Kyocera's Kagoshima Sendai Plant (Kagoshima Prefecture, Japan)		

* The total number of CA3 Series insert types includes products in the new chipbreaker K Series.

Product	New Chipbreaker: K Series		
	KH	KG	KQ
Total Lineup (Insert Types)	54	57	36
Recommended application	Heavy interrupted to interrupted cutting (first choice)	Interrupted to continuous cutting	Sharpness focused
Production location	Kyocera's Kagoshima Sendai Plant (Kagoshima Prefecture, Japan)		

New Material: CA3 Series

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Kyocera has used newly developed CVD coating technology for cast iron machining in its CA3 Series. In addition to increasing the adhesion strength of the coating layer by optimizing the crystalline structure of each layer, abrasion and fracture resistance have been increased by adopting hard-surface coatings and improved surface layer coating conditions. Kyocera has also adjusted the balance between layers for various applications to enhance tool life and ensure consistent cutting.

Material	Application	Description
CA310	Gray cast iron (first choice)	Focuses on abrasion resistance in gray cast iron machining (ductile cast iron also possible) with increased aluminum oxide layer thickness.
CA315	Ductile cast iron (first choice)	Optimizes performance in ductile cast iron machining (gray cast iron also possible) through adjustments of coating layer thickness.
CA320	Ductile / gray cast iron (to optimize stable processing)	Improves stability in heavy interrupted cutting of ductile and gray cast iron with reduced overall CVD coating layer thickness.

New Chipbreaker: K Series

The surface of a cutting tool insert incorporates grooves and uneven rough areas called “chipbreakers” that efficiently break and remove chips of metal from the workpiece. A chipbreaker’s purpose is to ensure chip evacuation, thereby preventing quality problems and process interruptions caused by chip buildup and/or damaged blade edges.

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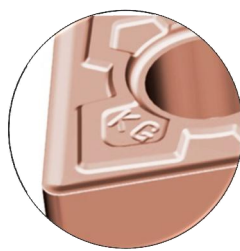
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Kyocera's K Series features three newly designed edge shapes to maximize performance when combined with the new materials in the CA3 Series. By creating specialized chipbreaker shapes for specific applications, higher stability and cutting consistency can be expected even under high-load cutting conditions.

Chipbreaker	Application	Description
KH	Heavy interrupted to interrupted cutting (first choice)	High stability with flat land; for strong intermittent machining and casting scale removal.
KG	Interrupted to continuous cutting	Improved fracture resistance with positive land; for continuous machining and components with long dimensions.
KQ	Sharpness focused	Achieves both low resistance and edge strength. For thin-walled materials and high-precision components.



KQ Chipbreaker



KH Chipbreaker



KG Chipbreaker

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For more information about Kyocera: www.kyocera.eu

About Kyocera

Headquartered in Kyoto, Japan, Kyocera Corporation is one of the world's leading manufacturers of fine ceramic components for the technology industry. The strategically important divisions in the Kyocera Group, which is comprised of 235 subsidiaries (as of March 31, 2016), are information and communications technologies, products which increase quality of life, and environmentally friendly products. The technology group is also one of the oldest producers of solar energy systems worldwide, with more than 40 years of experience in the industry.

The company is ranked #531 on Forbes magazine's 2016 "Global 2000" listing of the world's largest publicly traded companies.

With a global workforce of over 69,000 employees, Kyocera posted net sales of approximately €11.59 billion in fiscal year 2015/2016. The products marketed by the company in Europe include printers, digital copying systems, microelectronic components, and fine ceramic products. The Kyocera Group has two independent companies in the Federal Republic of Germany: Kyocera Fineceramics GmbH in Neuss and Esslingen and Kyocera Document Solutions in Meerbusch.

The company also takes an active interest in cultural affairs. The Kyoto Prize, a prominent international award, is presented each year by the Inamori Foundation — established by Kyocera founder Dr. Kazuo Inamori — to individuals and groups worldwide who have contributed significantly to the scientific, cultural, and spiritual betterment of humankind (converted at approximately €360,000 per prize category).

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