



CA3 Series

New CVD Coated Carbides for Cast Iron

Reliable & Efficient Cast Iron Turning Grades

3 Strengths

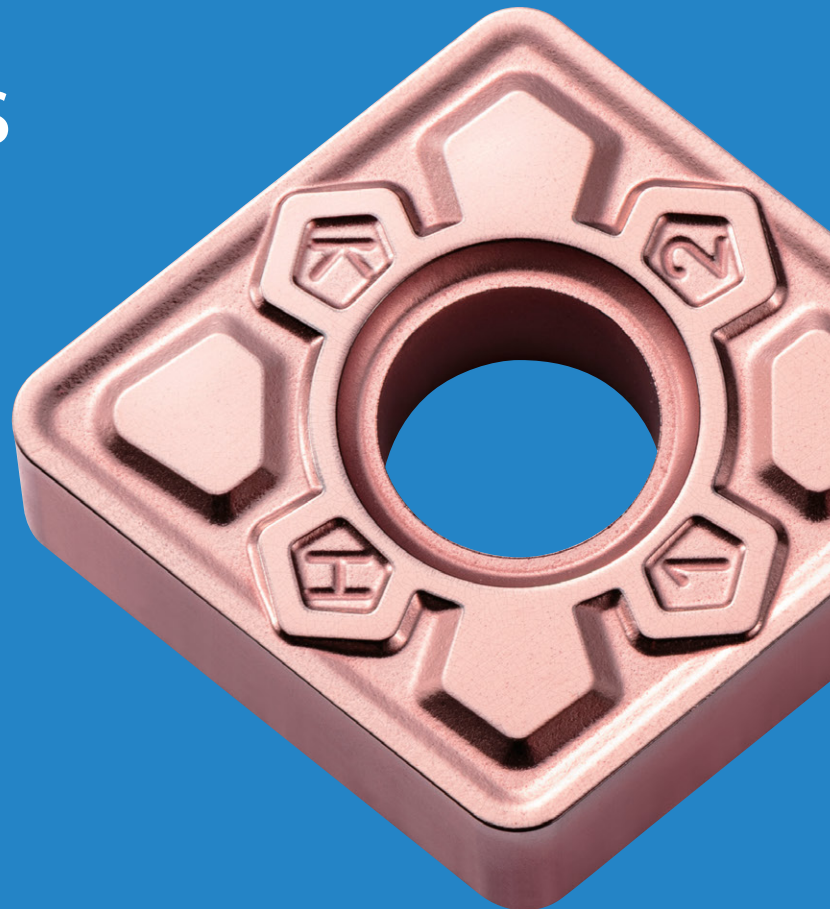
Long Tool Life / High Reliability / High Efficiency

3 Grades

CA310 / CA315 / CA320

3 Chipbreakers

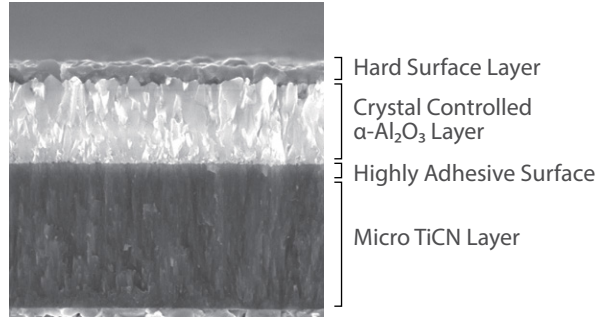
KQ / KG / KH



CA310 / CA315 / CA320

Long Tool Life and Stable Machining of Cast Iron

- **Improved Workpiece Surface Roughness due to Specialized Post-coating Insert Processing**
- **Hard Surface Layer**
Provides advanced wear resistance
- **Crystal Controlled α -Al₂O₃ Layer**
Alumina crystal orientation is optimized to provide greater wear resistance and chipping resistance
- **Strong Intra-coating Adhesion**
Higher adhesion between each layer with improved crystal structure
- **Micro TiCN Layer**
Higher coating hardness is possible due to a micro TiCN crystal structure, resulting in increased wear resistance



■ Coating Layer Adhesion Comparison (In-house Evaluation)

Cutting Conditions: Vc = 490 sfm, D.O.C. = 0.059", fz = 0.012 ipr, Wet
 Insert: CNMG120412
 Workpiece: 10-70-03 (8 Grooves in Workpiece)

Rake Face Condition (After Withstanding 3,000 Impacts)



CA310 for High-Speed Continuous Machining

Focused on wear resistance for machining gray cast iron through the deposition of a thickened alumina coating layer

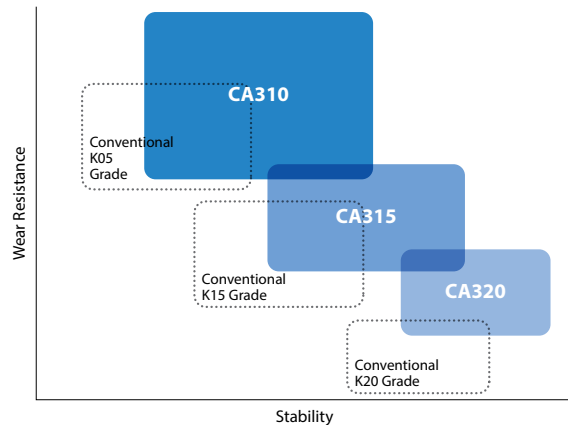
CA315 for General Machining

Excellent performance for machining gray & nodular cast iron by optimizing the total coating layer thickness

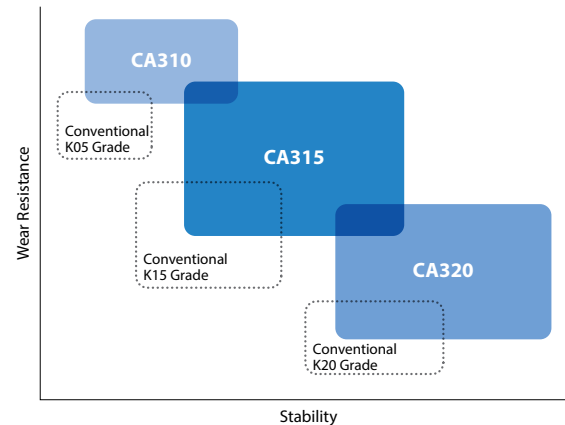
CA320 for Interrupted Machining

Improved stability in heavily interrupted machining for nodular cast iron by utilizing a thin CVD coating

Gray Cast Iron [1st Recommendation CA310](#)



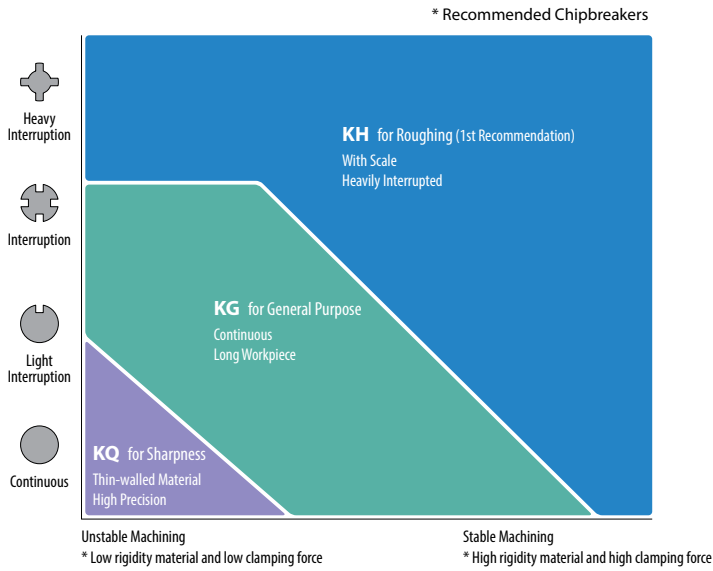
Nodular Cast Iron [1st Recommendation CA315](#)



CA3 for Cast Iron Machining with New K-Series Chipbreakers

Great for a Large Range of Heavy Machining Operations due to Improved Chipping Resistance

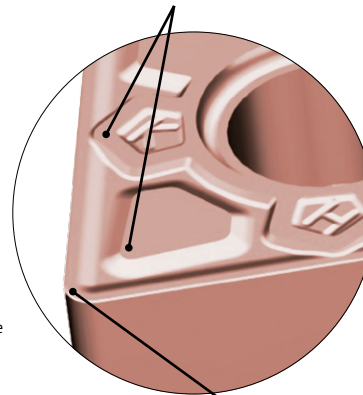
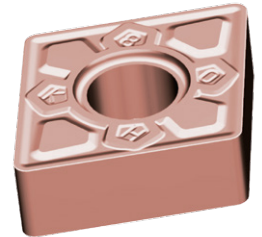
■ K-Series Chipbreakers



KH Chipbreaker for Roughing (1st Recommendation)

Good for Heavily Interrupted Machining
Focus on High Stability with Flat Land

Improved Sitting Ability
Resists Vibration and Edge Location Movement



Flat Land

Tough and Reliable Edge Security

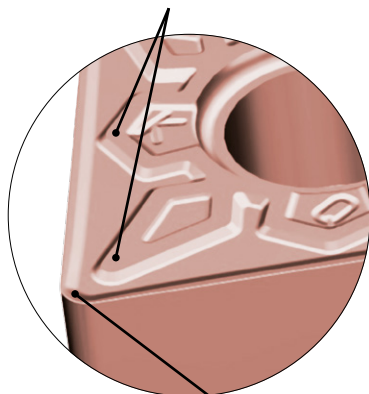
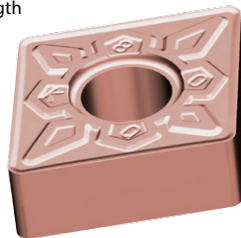
High Feed to Heavily Interrupted Machining

Edge Preparation Designed and Intended for Interrupted Machining with Breakage Resistance

KQ Chipbreaker Sharpness Oriented

Good for Machining when Sharpness is Necessary Such as Thin-walled Material
Good Balance of Low Cutting Forces and Edge Strength

Improved Locating / Seating in the Toolholder Pocket
Resists Machining Vibration

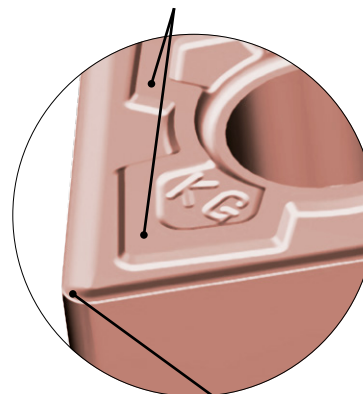
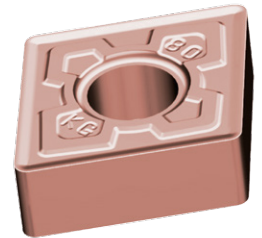


Balanced Sharpness and Strength
Edge Geometry is Appropriate for Thin-walled Workpieces

KG Chipbreaker General Purpose

For Various Cast Iron Machining Applications
Chipping Resistance is Improved in Spite of Having Positive Land

Improved Locating / Seating in the Toolholder Pocket
For General Purpose



Positive Land
Excellent Balance of Sharpness and Strength
Machining from Continuous to Light Interruption

Negative Inserts

Part Number	CA310	CA315	CA320
CNMG 431KQ	○	○	○
432KQ	○	○	○
433KQ	○	○	○
CNMG 431KG	●	●	●
432KG	●	●	●
433KG	●	●	●
CNMG 432KH	●	●	●
433KH	●	●	●
434KH	○	○	○
CNMA 431	●	●	●
432	●	●	●
433	●	●	●
434	○	○	○
CNMG 431	●	●	●
432	●	●	●
433	●	●	●
434	○	○	○
CNMG 543	●	●	●
544	●	●	●
CNMG 642	●	●	●
643	●	●	●
644	●	●	●
CNMG 431C	●	●	●
432C	●	●	●
433C	●	●	●
434C	○	○	○
CNMG 543C	●	●	●
CNMG 432ZS	●	●	●
433ZS	●	●	●
CNMG 432GC	○	○	○
433GC	○	○	○
CNMG 432WQ	○	○	○
433WQ	○	○	○
CNMG 432PH	●	●	●
433PH	●	●	●
434PH	○	○	○
CNMG 543PH	●	●	●
544PH	●	●	●
DNMG 431KQ	○	○	○
432KQ	○	○	○
DNMG 441KQ	○	○	○
442KQ	○	○	○
DNMG 431KG	●	●	●
432KG	●	●	●
433KG	●	●	●
DNMG 441KG	○	○	○
442KG	○	○	○
443KG	○	○	○
DNMG 432KH	●	●	●
433KH	●	●	●
DNMG 442KH	○	○	○
443KH	○	○	○
DNMA 431	●	●	●
432	●	●	●
DNMA 441	●	●	●
442	●	●	●

Part Number	CA310	CA315	CA320
DNMG 431	●	●	●
432	●	●	●
433	●	●	●
DNMG 441	○	○	○
442	○	○	○
443	○	○	○
DNMG 431C	●	●	●
432C	●	●	●
433C	●	●	●
DNMG 441C	○	○	○
442C	○	○	○
443C	○	○	○
DNMG 432ZS	●	●	●
433ZS	○	○	○
DNMG 442ZS	○	○	○
443ZS	○	○	○
DNMG 432GC	○	○	○
433GC	○	○	○
DNMG 442GC	○	○	○
443GC	○	○	○
DNMG 432PH	●	●	●
433PH	●	●	●
DNMG 442PH	○	○	○
443PH	○	○	○
RNMG 43	●	●	●
RNMG 54	●	●	●
SNMG 432KG	●	●	●
433KG	●	●	●
SNMG 432KH	●	●	●
433KH	●	●	●
434KH	○	○	○
SNMA 431	●	●	●
432	●	●	●
433	●	●	●
434	○	○	○
435	○	○	○
SNMG 322	●	●	●
SNMG 431	●	●	●
432	●	●	●
433	●	●	●
434	○	○	○
435	○	○	○
SNMG 432C	●	●	●
433C	●	●	●
SNMG 432ZS	●	●	●
433ZS	●	●	●
SNMG 432GC	○	○	○
433GC	○	○	○
SNMG 432PH	●	●	●
433PH	●	●	●
434PH	○	○	○
SNMG 543PH	●	●	●
544PH	●	●	●
SNM 432	●	●	●
433	●	●	●
TNMG 331KQ	○	○	○
332KQ	○	○	○

Positive Inserts

Part Number	CA310	CA315	CA320
TNMG 331KG	●	●	●
332KG	●	●	●
333KG	●	●	●
TNMG 332KH	●	●	●
333KH	●	●	●
334KH	○	○	○
TNMA 331	●	●	●
332	●	●	●
333	●	●	●
334	○	○	○
335	○	○	○
TNMG 331	●	●	●
332	●	●	●
333	○	○	○
334	○	○	○
335	○	○	○
TNMG 431	○	○	○
432	○	○	○
433	○	○	○
TNMG 331C	●	●	●
332C	●	●	●
333C	●	●	●
TNMG 332ZS	●	●	●
333ZS	●	●	●
TNMG 332GC	○	○	○
333GC	○	○	○
TNMG 332PH	●	●	●
333PH	●	●	●
VNMG 332KG	○	○	○
333KG	○	○	○
VNMG 332KH	○	○	○
333KH	○	○	○
VNMG 331	○	○	○
332	○	○	○
WNMG 431KQ	○	○	○
432KQ	○	○	○
433KQ	○	○	○
WNMG 431KG	●	●	●
432KG	●	●	●
433KG	●	●	●
WNMG 432KH	●	●	●
433KH	●	●	●
434KH	○	○	○
WNMA 432	●	●	●
433	●	●	●
WNMG 431	●	●	●
432	●	●	●
433	●	●	●
WNMG 431C	●	●	●
432C	●	●	●
433C	●	●	●
WNMG 432ZS	●	●	●
433ZS	●	●	●
WNMG 432GC	○	○	○
433GC	○	○	○
WNMG 432PH	●	●	●
433PH	●	●	●

Part Number	CA310	CA315	CA320
CCMT 3252	○	○	○
CCMT 2151GK	○	○	○
CCMT 3251GK	○	○	○
CCMT 431GK	○	○	○
432GK	○	○	○
CPMH 25151	○	○	○
25152	○	○	○
CPMH 321	○	○	○
322	○	○	○
DCMT 3252	○	○	○
DCMT 2151GK	○	○	○
2152GK	○	○	○
DCMT 3251GK	○	○	○
3252GK	○	○	○
RCMX 1204MO	○	○	○
SPM 421	○	○	○
422	○	○	○
SPM 432	○	○	○
433	○	○	○
TCMT 2151HQ	○	○	○
2152HQ	○	○	○
TCMT 3252HQ	○	○	○
3253HQ	○	○	○
TPMT 221HQ	○	○	○
222HQ	○	○	○
TPMT 321HQ	○	○	○
322HQ	○	○	○
TPMR 221	○	○	○
222	○	○	○
TPMR 321	○	○	○
322	○	○	○
TPM 221	○	○	○
222	○	○	○
TPM 321	○	○	○
322	○	○	○
323	○	○	○

All Items Available in October 2016

● : U.S. Stock ○ : World Express (Shipping: 7-10 Business Days)



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