

## NEW TECHNOLOGY PROVIDES HIGH SPEED, PLUS DURABILITY

There is an increasing demand from the market for an improvement in machining efficiency and for higher cutting speeds. Additionally, the use of high strength materials in components that require cutting tools with high wear resistance is also increasing. However, cutting tools with a high wear resistance are generally prone to chipping and instability. To meet the demand, Mitsubishi Materials has released MC6115, a new CVD coated turning grade for steel machining, which is capable of both high speed machining and providing excellent cutting edge stability.

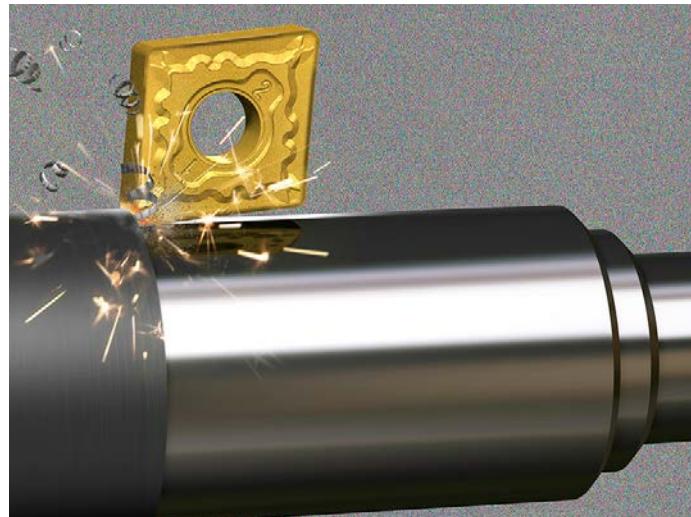
MC6115 has the combination of a high hardness base material and new thick Al<sub>2</sub>O<sub>3</sub> outer coating with improved wear resistance at high temperatures. It also has higher peeling resistance and cutting edge stability achieved by super TOUGH-GRIP technology. This provides the ultimate enhancement of the adhesion between the Al<sub>2</sub>O<sub>3</sub> and TiCN coating layers.

### Super Nano Texture Technology

The outstanding crystal orientation of the Al<sub>2</sub>O<sub>3</sub> coating has been developed by improving the conventional Nano Texture Technology. These technological improvements increase both wear resistance and tool life.

### Preventing wear and sudden fracturing

Cracks that occur due to the impacts during unstable cutting are prevented by the relaxation of the tensile stress of the coating. The MC6115 grade decreases the tensile stress by 80% compared to conventional CVD inserts. When cracks are generated in the surface of

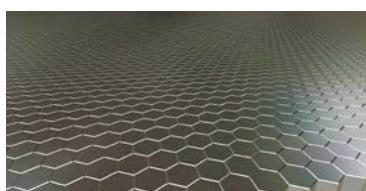


coatings during machining, they propagate through the coating into the substrate due to the large tensile stress in the coating structure. This creates one of the main causes of sudden insert breakage. MC6115 has a much lower level of stress than conventional CVD coatings due to the surface treatment that spreads the force of impacts during machining and protects it from sudden fracturing.

### A new range of possibilities

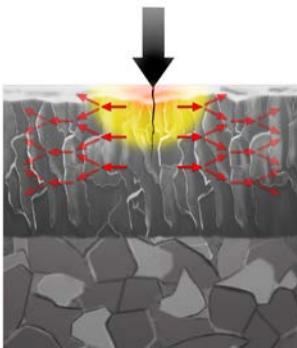
The combination of the tough substrate and wear resistant coating enables high performance during both high speed continuous and interrupted cutting, thereby permitting a wider range of steel turning applications up to a cutting speed of 480 m/min (Vc).

The inserts are finished in a gold colour for easy identification of used edges and are available in 6 negative geometries, CNMG, DNMG, SNMG, TNMG, VNMG and WNMG, with 11 different chipbreakers.



CRYSTAL  
ORIENTATION  
(image)

Lower tensile stress in MC6115 stops cracks penetrating



Higher tensile stress in conventional coatings allows cracks to penetrate

