## THE FUTURE IS HERE - NEW MV GRADES TURNING AND MILLING INSERTS

Mitsubishi Materials has developed a very special series of grades that reaches across both milling and turning applications.

The key feature of this innovative grades is due to the adoption of the newly developed AL-Rich coating method. This advanced CVD coating of Aluminium titanium nitride (Al,Ti)N is a compound of aluminium and titanium that is widely used as a coating for advanced cutting tools because of its extremely hard and heat-resistant properties.



The combination of atoms with different sizes creates an exceptionally hard crystal structure.

The hardness of (Al,Ti)N increases as the Al content ratio increases, but with conventional technology, when the Al content ratio exceeds 60 %, the crystal structure changes and the hardness of (Al,Ti)N decreases.



When the Al ratio is over 60 %, a softer crystal phase is formed.

Using a new coating process based on Mitsubishi Materials' own original technology. This a way in which the Al-Rich coating does not change its crystal structure even when the Al content is increased. This enables a higher Al content and a provides a higher hardness (Al,Ti)N.



Crystal image of MV1000 series



The MV1000 series includes 2 new grades for milling, MV1020 and MV1030 for machining a wide range of materials from alloy and stainless steels through to cast iron. The turning grade MV9005 specialises in the high efficiency machining of heat resistant super alloys.

## MILLING

MV1020 : This grade has advanced wear and thermal shock resistance and also achieves stable cutting at unprecedented cutting speeds, especially when machining steel and ductile cast iron, this provides the benefit of greatly reducing work time.

MV1030 : The new Al-Rich coating also provides excellent wear resistance. With an extreme ability to prevent sudden breakage, class leading reliability was also realised especially during problematic wet cutting where thermal shock is prevelant. This same benefit of reliability is also realised when machining stainless steels.

MV inserts are extremely versatile and are available for the WWX, WSX, WJX, WSF, VPX, AHX and ASX cutters.

## TURNING

MV9005 : This grade exceeds all current standards when machining heat resistant super alloys. A range of negative and positive inserts and 5 different chip breakers ensure the optimum combination for efficient turning can be found. Cutting speeds up to 110 m/min can be achieved.

Negative geometry inserts CNMG, DNMG, SNMG, TNMG and VNMG types are available together with a 7° RCMT and RCMX positive geometry types.

