

## NEW MULTI-FLUTE VQN END MILLS

VQN, the top of the range series of carbide end mills from Mitsubishi Materials has recently been expanded to include 2 new innovative types. These latest additions have been specifically designed for specialised applications in Nickel-based Heat Resistant Super Alloys such as Inconel.

### Coating and ZERO- $\mu$ Surface

A lot of the reliability and high performance of all the VQ series can be attributed to the (Al,Ti,Si)N group based coating which delivers substantially improved wear resistance. The extreme heat and oxidation resistance and lower coefficient of friction of the new coating means this next generation of end mills can maximise performance and help prevent tool wear even under the harshest of cutting conditions. Additionally the surface of the coating has been given a smoothening treatment resulting in better machined surfaces, reduced cutting resistance and an increased chip discharge capacity. With conventional coatings the sharpness of the cutting edge can be affected, but with the unique ZERO- $\mu$  Surface, the cutting edge retains its sharpness whilst still remaining protective during harsh cutting conditions.

### VQN4 and 6 flute types

The number of flutes has been optimised in accordance to the outer diameter to achieve excellent chip evacuation and increased tool rigidity. The new flute geometry in combination with the (Al, Cr)N coating provides the class leading wear resistance needed for such tough materials and is therefore the ideal choice when machining of heat resistant super alloys. The corner radius geometry also features improved fracture resistance and the negative rake angle for the corner R cutting edge allows the smooth flow of chips.



### Irregular Helix Flutes

To further enhance reliability and prevent vibration, the helix angles vary from flute to flute by up to 4°.

### Availability

The new 4 and 6 flute types join the existing family of VQN 2 and 4 flute ball nose end mills (VQN2MB, VQN4MB, VQN4MBF) and are available as follows :

VQN4MVRB - Ø3 with 0.3 mm and 0.5 mm corner radii  
 Ø4 with 0.3 mm and 0.5 mm corner radii  
 Ø5 with 0.5 mm corner radii  
 Ø6 with 0.5 mm and 1.0 mm corner radii

VQN6MVRB - Ø8 with 0.5 mm and 1.0 mm corner radii  
 Ø10 with 0.5 mm and 1.0 mm corner radii  
 Ø12 with 0.5 mm and 1.0 mm corner radii

### IRREGULAR HELIX FLUTES

Helix angles vary from flute to flute by up to 4° to prevent vibration.

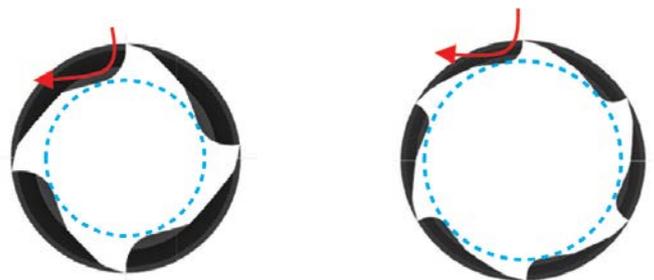


VQN4MVRB

VQN6MVRB

### SPECIALLY DESIGNED FLUTES

Suitable for machining heat resistant super alloys by featuring excellent chip evacuation and wear resistance properties.



VQN4MVRB

VQN6MVRB