

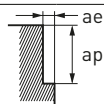
**NEW**

# VQLCS

## RECOMMENDED CUTTING CONDITIONS

### SIDE MILLING

| Material  | DC | Vc  | n     | Vf   | ap | ae   | hm    | h max |
|---|----|-----|-------|------|----|------|-------|-------|
| P<br>Carbon steel,<br>Alloy steel,<br>Mild steel                              | 6  | 180 | 9500  | 1600 | 18 | 0.6  | 0.008 | 0.015 |
|   | 8  | 180 | 7200  | 1600 | 24 | 0.8  | 0.010 | 0.020 |
|   | 10 | 180 | 5700  | 1500 | 30 | 1.0  | 0.012 | 0.023 |
|   | 12 | 180 | 4800  | 1500 | 36 | 1.2  | 0.015 | 0.028 |
| P<br>Pre-hardened steel,<br>Carbon steel,<br>Alloy steel,<br>Alloy tool steel | 6  | 160 | 8500  | 1200 | 18 | 0.6  | 0.007 | 0.013 |
|   | 8  | 160 | 6400  | 1300 | 24 | 0.8  | 0.009 | 0.018 |
|   | 10 | 160 | 5100  | 1200 | 30 | 1.0  | 0.011 | 0.022 |
|   | 12 | 160 | 4200  | 1200 | 36 | 1.2  | 0.013 | 0.025 |
| M<br>Austenitic, Ferritic and<br>Martensitic stainless steels,                | 6  | 100 | 5300  | 800  | 18 | 0.3  | 0.005 | 0.010 |
|   | 8  | 100 | 4000  | 800  | 24 | 0.4  | 0.006 | 0.013 |
| S<br>Titanium alloys  | 10 | 100 | 3200  | 700  | 30 | 0.5  | 0.008 | 0.015 |
|   | 12 | 100 | 2700  | 700  | 36 | 0.6  | 0.008 | 0.017 |
| M<br>Hardened stainless steels,<br>Cobalt chromium alloy                      | 6  | 90  | 4800  | 700  | 18 | 0.3  | 0.005 | 0.010 |
|   | 8  | 90  | 3600  | 700  | 24 | 0.4  | 0.006 | 0.013 |
|   | 10 | 90  | 2900  | 700  | 30 | 0.5  | 0.008 | 0.015 |
|   | 12 | 90  | 2400  | 600  | 36 | 0.6  | 0.008 | 0.016 |
| N<br>Copper,<br>Copper alloy  | 6  | 200 | 10600 | 1800 | 18 | 0.6  | 0.008 | 0.015 |
|   | 8  | 200 | 8000  | 1800 | 24 | 0.8  | 0.011 | 0.020 |
|   | 10 | 200 | 6400  | 1600 | 30 | 1.0  | 0.012 | 0.022 |
|   | 12 | 200 | 5300  | 1600 | 36 | 1.2  | 0.014 | 0.027 |
| S<br>Heat resistant alloys  | 6  | 30  | 1600  | 100  | 18 | 0.12 | 0.002 | 0.003 |
|   | 8  | 30  | 1200  | 100  | 24 | 0.16 | 0.002 | 0.004 |
|   | 10 | 30  | 1000  | 100  | 30 | 0.2  | 0.003 | 0.005 |
|   | 12 | 30  | 800   | 100  | 36 | 0.24 | 0.003 | 0.005 |



1. SMART MIRACLE coating has very low electrical conductivity; therefore, an electrical contact type of tool setter may not work. When measuring the tool length, please use a mechanical contact type or a laser tool setter.
2. The irregular pitch flute end mill has a larger effect on controlling vibration when compared to standard end mills. However, if the rigidity of the machine or the workpiece material installation is poor, vibration or abnormal sounds can occur. In that case, please adjust the revolution, feed rate and depth of cut.
3. The revolution and feed rate can be increased with a smaller depth of cut.
4. For machining stainless steel, titanium alloys and heat resistant alloys, the use of water-soluble coolant is effective.