

## E453 Series Cutting Data

## 3 Flute Carbide Slot Drill Cutting Data

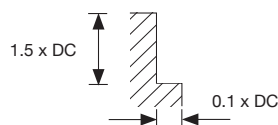


The feed rate for long, long reach and uncoated tools should be reduced by up to 50%

| E453 SERIES              |       |                                                |       |                        |           |       |       |       |       |       |       |       |       |       |       |
|--------------------------|-------|------------------------------------------------|-------|------------------------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| VDI<br>Material<br>Group |       |                                                | HRc   | Side<br>Cutting        | Size (mm) |       |       |       |       |       |       |       |       |       |       |
|                          |       |                                                |       |                        | 2.0       | 3.0   | 4.0   | 5.0   | 6.0   | 8.0   | 10.0  | 12.0  | 14.0  | 16.0  | 20.0  |
| P                        | 1-5   | Non-Alloy<br>Steel                             | <25   | v <sub>c</sub> (m/min) | 60        | 70    | 80    | 85    | 90    | 90    | 85    | 90    | 90    | 95    | 90    |
|                          |       |                                                |       | n                      | 9550      | 7425  | 6365  | 5410  | 4775  | 3580  | 2705  | 2385  | 2045  | 1890  | 1430  |
|                          |       |                                                |       | f <sub>z</sub>         | 0.006     | 0.009 | 0.019 | 0.024 | 0.03  | 0.042 | 0.047 | 0.047 | 0.047 | 0.048 | 0.047 |
|                          |       |                                                |       | f (mm/min)             | 170       | 200   | 360   | 390   | 430   | 450   | 380   | 335   | 290   | 270   | 200   |
|                          | 6-9   | Low-Alloy<br>Steel                             | 25-35 | v <sub>c</sub> (m/min) | 60        | 70    | 80    | 85    | 90    | 90    | 85    | 90    | 90    | 95    | 90    |
|                          |       |                                                |       | n                      | 9550      | 7425  | 6365  | 5410  | 4775  | 3580  | 2705  | 2385  | 2045  | 1890  | 1430  |
|                          |       |                                                |       | f <sub>z</sub>         | 0.006     | 0.009 | 0.019 | 0.024 | 0.03  | 0.042 | 0.047 | 0.047 | 0.047 | 0.048 | 0.047 |
|                          |       |                                                |       | f (mm/min)             | 170       | 200   | 360   | 390   | 430   | 450   | 380   | 335   | 290   | 270   | 200   |
| M                        | 12-13 | Ferritic/<br>Martensitic<br>Stainless<br>Steel |       | v <sub>c</sub> (m/min) | 35        | 35    | 40    | 40    | 45    | 45    | 45    | 45    | 45    | 45    | 45    |
|                          |       |                                                |       | n                      | 5570      | 3715  | 3180  | 2545  | 2385  | 1790  | 1430  | 1195  | 1020  | 895   | 715   |
|                          |       |                                                |       | f <sub>z</sub>         | 0.006     | 0.009 | 0.018 | 0.027 | 0.03  | 0.042 | 0.045 | 0.045 | 0.044 | 0.048 | 0.048 |
|                          |       |                                                |       | f (mm/min)             | 100       | 100   | 170   | 180   | 215   | 225   | 190   | 160   | 135   | 130   | 105   |
| K                        | 15-20 | Cast Iron                                      |       | v <sub>c</sub> (m/min) | 60        | 55    | 60    | 55    | 55    | 55    | 60    | 55    | 55    | 55    | 55    |
|                          |       |                                                |       | n                      | 9550      | 5835  | 4775  | 3500  | 2920  | 2190  | 1910  | 1460  | 1250  | 1095  | 875   |
|                          |       |                                                |       | f <sub>z</sub>         | 0.017     | 0.026 | 0.035 | 0.044 | 0.064 | 0.093 | 0.115 | 0.154 | 0.181 | 0.22  | 0.285 |
|                          |       |                                                |       | f (mm/min)             | 485       | 455   | 500   | 460   | 560   | 610   | 660   | 675   | 680   | 720   | 750   |
| N                        | 21-24 | Aluminium/<br>Aluminium<br>Alloys              |       | v <sub>c</sub> (m/min) | 140       | 145   | 140   | 145   | 145   | 145   | 145   | 140   | 145   | 145   | 140   |
|                          |       |                                                |       | n                      | 22280     | 15385 | 11140 | 9230  | 7690  | 5770  | 4615  | 3715  | 3295  | 2885  | 2230  |
|                          |       |                                                |       | f <sub>z</sub>         | 0.016     | 0.021 | 0.031 | 0.037 | 0.048 | 0.064 | 0.08  | 0.098 | 0.444 | 0.129 | 0.167 |
|                          |       |                                                |       | f (mm/min)             | 1070      | 970   | 1035  | 1025  | 1110  | 1105  | 1105  | 1090  | 1100  | 1115  | 1115  |
|                          | 26-27 | Copper/<br>Copper<br>Alloys                    |       | v <sub>c</sub> (m/min) | 105       | 105   | 110   | 105   | 105   | 110   | 105   | 105   | 105   | 110   | 105   |
|                          |       |                                                |       | n                      | 16710     | 11140 | 8755  | 6685  | 5570  | 4375  | 3340  | 2785  | 2385  | 2190  | 1670  |
|                          |       |                                                |       | f <sub>z</sub>         | 0.016     | 0.023 | 0.029 | 0.037 | 0.048 | 0.063 | 0.081 | 0.096 | 0.115 | 0.125 | 0.162 |
|                          |       |                                                |       | f (mm/min)             | 800       | 770   | 760   | 740   | 800   | 825   | 810   | 800   | 825   | 820   | 810   |

1.5 x DC

0.1 x DC



All recommendations are based on ideal machining conditions.

Adjustments may need to be made according to your set-up.

The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.

$v_c$  - cutting speed (m/min)  
 $n$  - RPM (rev/min)  
 $f_z$  - feed per tooth (mm)  
 $f$  - feed rate (mm/min)  
 $z$  - No. of Teeth  
 $a_p$  - axial depth of cut  
 $a_e$  - radial depth of cut

$$\text{To calculate RPM from cutting speed: } n = \frac{v_c \cdot 1000}{\pi \cdot \phi}$$

$$\text{To calculate cutting speed from RPM: } v_c = \frac{n \cdot \pi \cdot \phi}{1000}$$