

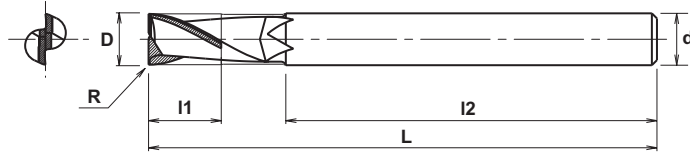
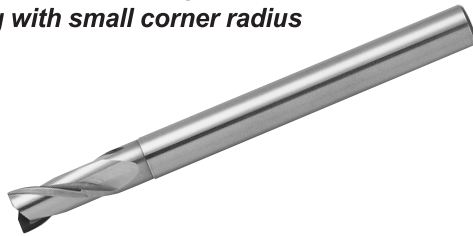


METRIC

Beam End Mill

VN-OCES2-R Type

- 2 Flute with 30° Helix, possible center cutting with small corner radius



| CATALOG NUMBER | STK | DIMENSIONS | | | | | |
|-----------------|-----|------------|------|----|----|----|---|
| | | D | R | I1 | I2 | L | d |
| VN-OCES2030R015 | □ | 3.0 | 0.15 | 6 | 45 | 60 | 4 |
| VN-OCES2035R015 | □ | 3.5 | 0.15 | 6 | 45 | 60 | 4 |
| VN-OCES2040R015 | □ | 4.0 | 0.15 | 7 | 43 | 60 | 4 |
| VN-OCES2045R015 | □ | 4.5 | 0.15 | 7 | 43 | 60 | 6 |
| VN-OCES2050R015 | □ | 5.0 | 0.15 | 7 | 48 | 65 | 6 |
| VN-OCES2055R015 | □ | 5.5 | 0.15 | 9 | 46 | 65 | 6 |
| VN-OCES2060R025 | □ | 6.0 | 0.25 | 9 | 46 | 65 | 6 |
| VN-OCES2065R025 | □ | 6.5 | 0.25 | 9 | 46 | 65 | 8 |
| VN-OCES2070R025 | □ | 7.0 | 0.25 | 9 | 66 | 85 | 8 |
| VN-OCES2075R025 | □ | 7.5 | 0.25 | 9 | 66 | 85 | 8 |

| CATALOG NUMBER | STK | DIMENSIONS | | | | | |
|-----------------|-----|------------|------|----|----|-----|----|
| | | D | R | I1 | I2 | L | d |
| VN-OCES2080R025 | □ | 8.0 | 0.25 | 9 | 66 | 85 | 8 |
| VN-OCES2085R025 | □ | 8.5 | 0.25 | 9 | 66 | 85 | 10 |
| VN-OCES2090R025 | □ | 9.0 | 0.25 | 9 | 81 | 100 | 10 |
| VN-OCES2095R025 | □ | 9.5 | 0.25 | 9 | 81 | 100 | 10 |
| VN-OCES2100R040 | □ | 10.0 | 0.40 | 12 | 78 | 100 | 10 |
| VN-OCES2105R040 | □ | 10.5 | 0.40 | 12 | 78 | 100 | 12 |
| VN-OCES2110R040 | □ | 11.0 | 0.40 | 12 | 98 | 120 | 12 |
| VN-OCES2115R040 | □ | 11.5 | 0.40 | 12 | 98 | 120 | 12 |
| VN-OCES2120R040 | □ | 12.0 | 0.40 | 12 | 98 | 120 | 12 |

- Stocked standard
- Inquire regarding delivery

Recommended Cutting Data for VN-OCES2 & VN-OCES2-R

| Material | Graphite | | Carbon | | Metal Matrix Composite (up to 30% Ceramic content) | | Machinable Ceramics | |
|--------------------------------------|----------------------------------------------------|------------------------|----------------------------------------------------|------------------------|----------------------------------------------------|------------------------|---------------------------------------------------|------------------------|
| Type of Machining - Shoulder Cutting | $V_c=250\text{m/min}$ $a_p=0.5D$ $a_e=0.05D$ | | $V_c=200\text{m/min}$ $a_p=0.5D$ $a_e=0.33D$ | | $V_c=30\text{m/min}$ $a_p=0.5D$ $a_e=0.02D$ | | $V_c=8\text{m/min}$ $a_p=0.33D$ $a_e=0.08D$ | |
| | Diameter | N (min ⁻¹) | Vc (mm/min) | N (min ⁻¹) | Vc (mm/min) | N (min ⁻¹) | Vc (mm/min) | N (min ⁻¹) |
| 3 | 27,000 | 1,600 | 21,000 | 1,300 | 3,200 | 190 | 850 | 15 |
| 4 | 20,000 | 1,600 | 16,000 | 1,300 | 2,400 | 190 | 700 | 15 |
| 5 | 16,000 | 1,900 | 13,000 | 1,400 | 1,900 | 190 | 500 | 16 |
| 6 | 13,000 | 2,100 | 10,000 | 1,400 | 1,600 | 220 | 400 | 16 |
| 8 | 10,000 | 2,400 | 8,000 | 1,400 | 1,200 | 220 | 320 | 16 |
| 10 | 8,000 | 2,400 | 6,400 | 1,300 | 1,000 | 220 | 250 | 15 |
| 12 | 6,500 | 2,600 | 5,300 | 1,300 | 800 | 200 | 200 | 15 |

| Material | Graphite | | Carbon | | Metal Matrix Composite (up to 30% Ceramic content) | | Machinable Ceramics | |
|------------------------------|------------------------------------------------|------------------------|------------------------------------------------|------------------------|----------------------------------------------------|------------------------|-----------------------------------------------|------------------------|
| Type of Machining - Slotting | $V_c=250\text{m/min}$ $a_p=0.5D$ $a_e=D$ | | $V_c=200\text{m/min}$ $a_p=0.5D$ $a_e=D$ | | $V_c=30\text{m/min}$ $a_p=0.5D$ $a_e=D$ | | $V_c=8\text{m/min}$ $a_p=0.33D$ $a_e=D$ | |
| | Diameter | N (min ⁻¹) | Vc (mm/min) | N (min ⁻¹) | Vc (mm/min) | N (min ⁻¹) | Vc (mm/min) | N (min ⁻¹) |
| 3 | 27,000 | 700 | 21,000 | 1,200 | 3,200 | 60 | 850 | 8 |
| 4 | 20,000 | 700 | 16,000 | 1,200 | 2,400 | 50 | 700 | 8 |
| 5 | 16,000 | 800 | 13,000 | 1,300 | 1,900 | 50 | 500 | 9 |
| 6 | 13,000 | 900 | 10,000 | 1,300 | 1,600 | 60 | 400 | 9 |
| 8 | 10,000 | 1,000 | 8,000 | 1,300 | 1,200 | 60 | 320 | 9 |
| 10 | 8,000 | 1,000 | 6,400 | 1,200 | 1,000 | 55 | 250 | 8 |
| 12 | 6,500 | 1,100 | 5,300 | 1,200 | 800 | 55 | 200 | 8 |