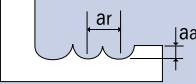




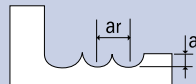
## List 3710 - EXOCARB® WXL®: Ball End, Regular Length, 2 Flute

### Standard Milling

| Hardness      | -                          |                | <32 HRC   |                | 33-41 HRC  |                | 42-50 HRC                  |                |
|---------------|----------------------------|----------------|---|----------------|--|----------------|----------------------------|----------------|
| Work Material | Copper<br>Copper Alloy     |                | Cast Iron, Carbon Steel, Alloy<br>Steels,<br>Stainless, Die Steels                |                | Hardened Steels<br>Pre-hardened Steels, P20, H13, S7, A2 |                |                            |                |
| Cutting Speed | 388 SFM                    |                | 324 SFM   |                | 263 SFM  |                | 233 SFM                    |                |
| Depth of Cut  | $a_a=0.05D$<br>$a_r=0.10D$ |                |  |                | $a_a=0.03D$<br>$a_r=0.10D$                               |                | $a_a=0.02D$<br>$a_r=0.05D$ |                |
| Mill Diameter | Speed<br>RPM               | Feed<br>in/min | Speed<br>RPM  | Feed<br>in/min | Speed<br>RPM   | Feed<br>in/min | Speed<br>RPM               | Feed<br>in/min |
| 0.1           | 25,000                     | 5.0            | 25,000  | 5.0            | 25,000   | 5.0            | 25,000                     | 5.0            |
| 0.2           | 25,000                     | 10.0           | 25,000  | 10.0           | 25,000   | 10.0           | 25,000                     | 10.0           |
| 0.4           | 25,000                     | 20.0           | 25,000  | 20.0           | 25,000   | 20.0           | 25,000                     | 15.0           |
| 0.6           | 25,000                     | 30.0           | 25,000  | 30.0           | 25,000   | 30.0           | 25,000                     | 21.0           |
| 0.8           | 25,000                     | 40.0           | 25,000  | 40.0           | 25,000   | 40.0           | 25,000                     | 27.5           |
| 1.0           | 25,000                     | 45.0           | 25,000  | 45.0           | 25,000   | 45.0           | 22,610                     | 31.7           |
| 2.0           | 18,830                     | 60.3           | 15,720  | 50.3           | 12,760   | 40.8           | 11,310                     | 29.4           |
| 3.0           | 12,550                     | 67.8           | 10,480  | 56.6           | 8,510  | 46.0           | 7,540                      | 33.2           |
| 4.0           | 9,410                      | 73.4           | 7,860   | 61.3           | 6,380  | 49.8           | 5,650                      | 40.7           |
| 6.0           | 6,280                      | 67.8           | 5,240   | 56.6           | 4,250  | 45.9           | 3,770                      | 33.2           |
| 8.0           | 4,710                      | 63.1           | 3,930   | 52.7           | 3,190  | 42.7           | 2,830                      | 31.7           |
| 10.0          | 3,770                      | 57.3           | 3,140   | 47.7           | 2,550  | 38.8           | 2,260                      | 28.0           |
| 12.0          | 3,140                      | 56.5           | 2,620   | 47.2           | 2,130  | 38.3           | 1,880                      | 29.3           |
| 16.0          | 2,350                      | 42.3           | 1,970   | 35.5           | 1,600  | 28.8           | 1,410                      | 22.0           |
| 20.0          | 1,880                      | 33.8           | 1,570   | 28.3           | 1,280  | 23.0           | 1,130                      | 17.6           |

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

### High Speed Light Milling

| Hardness      | -                          |                | <32 HRC   |                | 33-41 HRC  |                | 42-50 HRC                  |                |
|---------------|----------------------------|----------------|---|----------------|--|----------------|----------------------------|----------------|
| Work Material | Copper<br>Copper Alloy     |                | Cast Iron, Carbon Steel, Alloy<br>Steels,<br>Stainless, Die Steels                  |                | Hardened Steels<br>Pre-hardened Steels, P20, H13, S7, A2 |                |                            |                |
| Cutting Speed | 659 SFM                    |                | 713 SFM   |                | 651 SFM  |                | 561 SFM                    |                |
| Depth of Cut  | $a_a=0.02D$<br>$a_r=0.05D$ |                |  |                | $a_a=0.02D$<br>$a_r=0.05D$                               |                | $a_a=0.01D$<br>$a_r=0.05D$ |                |
| Mill Diameter | Speed<br>RPM               | Feed<br>in/min | Speed<br>RPM  | Feed<br>in/min | Speed<br>RPM   | Feed<br>in/min | Speed<br>RPM               | Feed<br>in/min |
| 1.0           | 25,000                     | 45.0           | 25,000  | 45.0           | 25,000   | 45.0           | 25,000                     | 35.0           |
| 2.0           | 25,000                     | 80.0           | 25,000  | 80.0           | 25,000   | 80.0           | 25,000                     | 65.0           |
| 3.0           | 21,320                     | 115.1          | 23,060  | 124.5          | 21,060   | 113.7          | 18,150                     | 79.9           |
| 4.0           | 15,990                     | 124.7          | 17,300  | 134.9          | 15,790   | 123.2          | 13,610                     | 98.0           |
| 6.0           | 10,660                     | 115.1          | 11,530  | 124.5          | 10,530   | 113.7          | 9,070                      | 79.8           |
| 8.0           | 8,000                      | 107.2          | 8,650   | 115.9          | 7,900  | 105.9          | 6,810                      | 76.3           |
| 10.0          | 6,400                      | 97.3           | 6,920   | 105.2          | 6,320  | 96.1           | 5,450                      | 67.6           |
| 12.0          | 5,330                      | 95.9           | 5,770   | 103.9          | 5,270  | 94.9           | 4,540                      | 70.8           |
| 16.0          | 4,000                      | 72.0           | 4,330   | 77.9           | 3,950  | 71.1           | 3,400                      | 53.0           |
| 20.0          | 3,200                      | 57.6           | 3,460   | 62.3           | 3,160  | 56.9           | 2,720                      | 42.4           |

1. The indicated speeds and feeds are for high speed light milling for use with high speed/high precision machining centers.
2. Do not use flammable fluids because tools with considerable wear can cause sparks.
3. We recommend using air blow. When using cutting fluids, use a high quality fluid with high smoke retardant.

