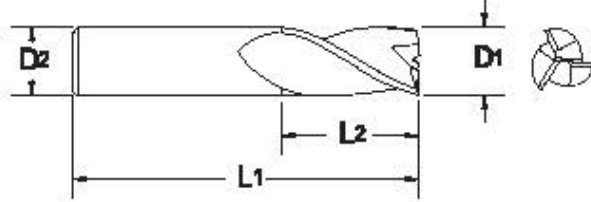
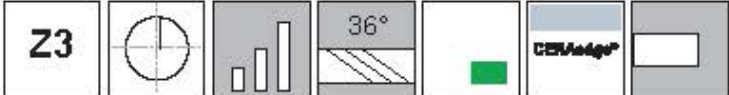


3  
Flute

**TuffCut® X-AL Series 138CE**



| CERAedge®  | EDP   | Diameter |      |         | Shank |      | OAL   |      | Flute Length |      | Stock Status               |
|------------|-------|----------|------|---------|-------|------|-------|------|--------------|------|----------------------------|
|            |       | Inch     | mm   | Decimal | Inch  | mm   | Inch  | mm   | Inch         | mm   | • Stocked<br>○ Non-Stocked |
| 13812501CE | 07988 | 1.8      |      | .1250   | 1.8   |      | 1-1/2 |      | 1/4          |      | •                          |
| 13812503CE | 07990 | 1.8      |      | .1250   | 1.8   |      | 1-1/2 |      | 3/8          |      | •                          |
| 13812504CE | 07992 | 1.8      |      | .1250   | 1.8   |      | 1-1/2 |      | 1/2          |      | •                          |
| 13812506CE | 07994 | 1.8      |      | .1250   | 1.8   |      | 2     |      | 3/4          |      | •                          |
| 13818751CE | 07996 | 3/16     |      | .1875   | 3/16  |      | 2     |      | 3/8          |      | •                          |
| 13818752CE | 07998 | 3/16     |      | .1875   | 3/16  |      | 2     |      | 1/2          |      | ○                          |
| 13818753CE | 08000 | 3/16     |      | .1875   | 3/16  |      | 2-1/2 |      | 5/8          |      | ○                          |
| 13818754CE | 08002 | 3/16     |      | .1875   | 3/16  |      | 2-1/2 |      | 3/4          |      | •                          |
| 13818755CE | 08004 | 3/16     |      | .1875   | 3/16  |      | 2-1/2 |      | 1            |      | •                          |
| 13823620CE | 08006 |          | 6.0  | .2362   |       | 6.0  |       | 58.0 |              | 13.0 | •                          |
| 13825000CE | 08008 | 1.4      |      | .2500   | 1.4   |      | 2     |      | 3/8          |      | •                          |
| 13825001CE | 08010 | 1.4      |      | .2500   | 1.4   |      | 2     |      | 1/2          |      | •                          |
| 13825003CE | 08012 | 1.4      |      | .2500   | 1.4   |      | 2     |      | 5/8          |      | ○                          |
| 13825004CE | 08014 | 1.4      |      | .2500   | 1.4   |      | 2-1/2 |      | 3/4          |      | •                          |
| 13825005CE | 08016 | 1.4      |      | .2500   | 1.4   |      | 3     |      | 1            |      | •                          |
| 13825007CE | 08018 | 1.4      |      | .2500   | 1.4   |      | 3     |      | 1-1/4        |      | •                          |
| 13831500CE | 08020 |          | 8.0  | .3150   |       | 8.0  |       | 64.0 |              | 19.0 | •                          |
| 13837500CE | 08022 | 3/8      |      | .3750   | 3/8   |      | 2     |      | 1/2          |      | •                          |
| 13837504CE | 08024 | 3/8      |      | .3750   | 3/8   |      | 2-1/2 |      | 3/4          |      | ○                          |
| 13837505CE | 08026 | 3/8      |      | .3750   | 3/8   |      | 2-1/2 |      | 1            |      | •                          |
| 13837506CE | 08028 | 3/8      |      | .3750   | 3/8   |      | 3     |      | 1-1/4        |      | ○                          |
| 13837507CE | 08030 | 3/8      |      | .3750   | 3/8   |      | 3-1/2 |      | 1-1/2        |      | ○                          |
| 13837508CE | 08032 | 3/8      |      | .3750   | 3/8   |      | 4     |      | 2            |      | ○                          |
| 13839370CE | 08034 |          | 10.0 | .3937   |       | 10.0 |       | 70.0 |              | 22.0 | •                          |
| 13847240CE | 08036 |          | 12.0 | .4724   |       | 12.0 |       | 84.0 |              | 26.0 | •                          |
| 13850000CE | 08038 | 1.2      |      | .5000   | 1.2   |      | 3     |      | 5/8          |      | •                          |
| 13850001CE | 08040 | 1.2      |      | .5000   | 1.2   |      | 3     |      | 3/4          |      | •                          |
| 13850002CE | 08042 | 1.2      |      | .5000   | 1.2   |      | 3     |      | 1            |      | ○                          |
| 13850003CE | 08044 | 1.2      |      | .5000   | 1.2   |      | 3     |      | 1-1/4        |      | •                          |
| 13850004CE | 08046 | 1.2      |      | .5000   | 1.2   |      | 4     |      | 1-1/2        |      | •                          |

**M.A. FORD® A P G**

**CERAedge®**

- Hardness that makes it the 3rd hardest material when compared to industrial diamonds.
- Toughness that is comparable to Titanium.
- Lubricity that approaches Teflon.
- Extreme heat tolerance.
- Non-reactive to Titanium.

| CERAedge® Coating Properties |                   |
|------------------------------|-------------------|
| Microhardness (HV)           | 3400              |
| Max. Service Temperature     | 1100° C / 2012° F |
| Friction Coefficient         | 0.25              |
| Coating Thickness            | 2-3 microns       |
| Color                        | Light Gray        |



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| Inch    |                | Metric (mm)  |               |
|---------|----------------|--------------|---------------|
| D1      | Tolerance      | D1           | Tolerance     |
| 1/8 - 1 | + .000/- .0005 | 6.00 - 20.00 | + .000/- .013 |