



# Greenleaf®

Saegertown, PA 16433 | 814-763-2915 | [www.greenleafcorporation.com](http://www.greenleafcorporation.com)

## A NEW, ADVANCED TITANIUM TURNING GRADE

# G-9610

*The latest in finish and semi-finish turning of titanium and other reactive alloys delivers higher productivity and tool life, while maintaining a superior surface finish.*

**G-9610** is a PVD-coated carbide grade designed for turning titanium-based alloys. The high-tech, wear-resistant, chemically-stable, and very smooth and lubricious coating protects the heat-resistant, sub-micron substrate and allows for higher speeds and extended tool life in continuous cuts.

- ✓ Highly resistant to built-up edge (BUE), chemical wear, abrasive wear, and loss of hardness at high temperatures
- ✓ Best applied at higher speeds and moderate feed rates
- ✓ Retains a sharp edge longer, relieving cutting forces and excessive heat



Available now in a variety of insert geometries and chipforms!

# Case Studies

**100% increase in tool life!**

**Ti-6246, forged disc, semi-finishing**

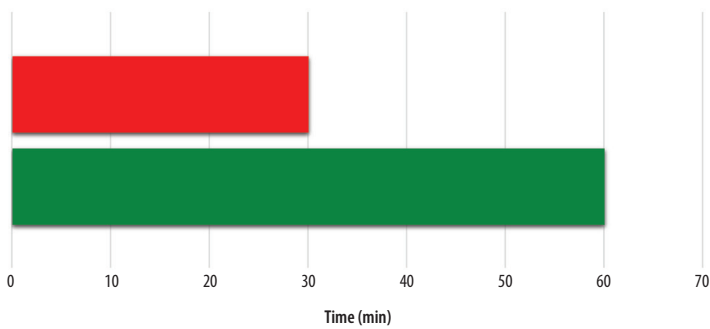
**Competitor**

Speed: 160 SFM (49m/min)  
Feed: 0.007 IPR (0.18mm/rev)  
Ap: 0.030" (0.75mm)  
Passes per edge: 1  
Time in cut per edge: 30 min.

**G-9610**

Speed: 160 SFM (49m/min)  
Feed: 0.007 IPR (0.18mm/rev)  
Ap: 0.030" (0.75mm)  
Passes per edge: 2  
Time in cut per edge: 60 min.

Tool Life (min)



**25% higher MRR and improved surface finish!**

**Ti6Al4V (38 HRC), aircraft engine casing, finishing**

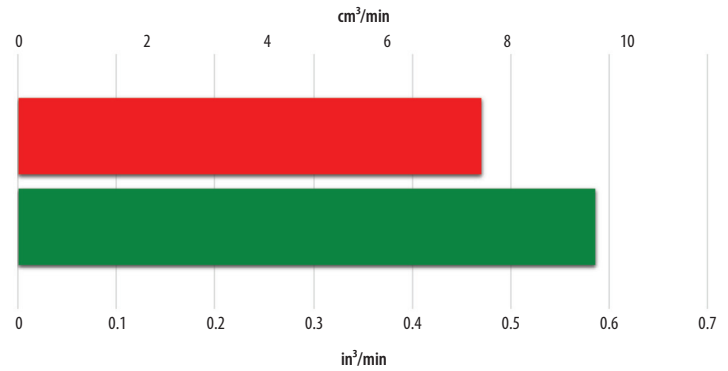
**Competitor**

Speed: 289 SFM (88m/min)  
Feed: 0.014 IPR (0.35mm/rev)  
Ap: 0.010" (0.25mm)  
Passes per edge: 1  
MRR: 0.470 in<sup>3</sup>/min (7.7 cm<sup>3</sup>/min)

**G-9610**

Speed: 361 SFM (110m/min)  
Feed: 0.014 IPR (0.35mm/rev)  
Ap: 0.010" (0.25mm)  
Passes per edge: 1  
MRR: 0.587 in<sup>3</sup>/min (9.6 cm<sup>3</sup>/min)

Metal Removal Rate



■ G-9610 ■ Competitor

## Recommended Cutting Conditions

*Semi-finishing: depth of cut below 0.060" (1.5mm) | Finishing: depth of cut below 0.020" (0.5mm)*

| G-9610 in Titanium Alloys                                     | Flood Coolant* |           |                |           | Flat Top<br>Max Chip Thickness<br>inch<br>(mm) | FF and FF2<br>Feed Rate<br>IPR<br>(mm/rev) | TF<br>Feed Rate<br>IPR<br>(mm/rev) |
|---|----------------|-----------|----------------|-----------|--|--|------------------------------------|
|   | Vc [SFM]       |           | Vc [m/min]     |           |  |  |                                    |
|   | Semi-finishing | Finishing | Semi-finishing | Finishing |  |  |                                    |
| Commercially pure<br>(grade 1, grade 2, grade 3, grade 4)     | 330            | 395       | 100            | 120       | .004-.010<br>(0.10-0.356)                      | .002-.014<br>(0.05-0.355)                  | .002-.010<br>(0.05-0.254)          |
| Alpha<br>(Ti-5Al2Sn, Ti-8Al1Mo1V)                             | 295            | 360       | 90             | 110       | .004-.008<br>(0.10-0.203)                      | .002-.012<br>(0.05-0.305)                  | .002-.008<br>(0.05-0.203)          |
| Near-alpha<br>(Ti-5522, Ti-834, Ti-6242, Ti-6246, Ti 1100)    | 260            | 330       | 80             | 100       | .004-.008<br>(0.10-0.203)                      | .002-.012<br>(0.05-0.305)                  | .002-.008<br>(0.05-0.203)          |
| Alpha-beta<br>(Ti-6Al4V, Ti-6Al6V2Sn, Ti-6Al7Nb)              | 230            | 295       | 70             | 90        | .004-.0065<br>(0.10-0.165)                     | .002-.010<br>(0.05-0.254)                  | .002-.006<br>(0.05-0.152)          |
| Beta and near-beta<br>(Ti-17, Ti-5553, Ti-10V2Fe3Al, Ti-8823) | 195            | 245       | 60             | 75        | .0035-.006<br>(0.09-0.152)                     | .002-.010<br>(0.05-0.254)                  | .002-.006<br>(0.05-0.152)          |

\*with HP/UHP coolant, increase speed by 20%



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