



RICHTER PRECISION, INC.

Coating Application Information

[Titankote™ C \[TiN\]](#)

This is a good general purpose coating: the standard by which all other coatings are judged. TiN may be used in just about any application, such as cutting, forming, plastic injection molding components, fine blanking, etc. TiN is used quite frequently for medical and food processing applications.

[Titankote™ C2-SL \[AlTiN-CrN\]](#)

This Super Lattice (SL) coating is comprised of hundreds of alternating nano-layers of AlTiN and CrN. This unique structure prevents the propagation of micro-fracturing between layers, thereby providing superb wear resistance. This coating has excellent oxidation resistance for high temperature applications.

[Titankote™ C3 \[Multi-layer CrN/CrC\]](#)

This coating has good hardness, corrosion resistance, and a high resistance to cracking and chipping. This is an excellent coating for machining aluminum and titanium alloys, metal-forming, and die-casting molds.

[Titankote™ C3+S \[Multi-layer CrN/CrC/\(Mo,W\)S₂\]](#)

This coating has good hardness, corrosion resistance, and ductility. The (Mo, W)₂ dry-film lubricant layer enhances this coating, making it a good choice for metal-forming applications, especially when forming non-ferrous materials. Use only when substrates and/or tolerances do not allow for CVD or TD coatings.

[Titankote™ C5 \[Multi-layer TiN/TiCN\]](#)

TiCN offers improved hardness and wear resistance beyond TiN. This coating is recommended for tough machining applications such as high carbon steels, high silicon aluminums, and tool steels. TiCN is also good for stamping and forming tools.

[Titankote™ C5B \[Multi-layer TiN/TiCN\]](#)

TiCN offers improved hardness and wear resistance beyond TiN. This coating is good for tough machining applications such as high carbon steels and high silicon aluminums. TiCN is also good for stamping and forming tools. This TiCN offers only aesthetic differences to our standard Titankote™ C5 coating.

[Titankote™ C6 \[AlTiN\]](#)

AlTiN is a versatile coating that continues to find new uses. It is excellent for machining cast iron, high-nickel alloys, titanium alloys, hardened steels, stainless steels, and much more. AlTiN has also proven to be a good coating for metal-forming. AlTiN is good for higher temperature applications.

[Titankote™ C6+S \[AlTiN/\(Mo, W\)S₂\]](#)

A great combination coating: the high micro-hardness of the AlTiN layer, combined with the (Mo, W)₂ dry-film lubricant layer of this coating makes it a good choice for many metal-forming applications, especially for high contact loads. Use only when substrates and/or tolerances do not allow for CVD or TD coatings.

[Titankote™ C6B \[TiAlN\]](#)

Many applications for TiAlN coating are similar to AlTiN coating. However, TiAlN is slightly less brittle and more ductile than AlTiN: this makes it better for roughing and interrupted cut applications. TiAlN is a better choice when coating lower grade or questionable substrates, as it can be more forgiving.

[Titankote™ C7 \[TiAlSiCN\]](#)

This coating combines the excellent wear resistance seen in most Ti-Al PVD coatings with an extremely high oxidation temperature. Our TiAlSiCN coating will perform well in tougher applications that occur at elevated temperatures (ex. – MQL drills).

[Titankote™ C8 \[ZrN\]](#)

This is another good general purpose coating. Many of its properties are similar to TiN. ZrN is good for machining titanium, cast iron, and non-ferrous materials such as aluminum, copper, and brass. ZrN is also used in decorative applications.

[Titankote™ C10 \[DLC\]](#)

This ta-C DLC coating is the hardest and most lubricious available. It is great for high-speed machining of graphite, carbon fiber, composites, aluminum, and other non-ferrous materials. Although it is typically used on carbide tooling, it can be deposited onto HSS, aluminum, and titanium with no problems.

[Titankote™ C11 \[DLC\]](#)

This is an a-C:H DLC film deposited by a low temperature Pa-CVD process. Our Titankote™ C11 is smoother and more ductile than most DLC films. This coating is a better choice for polished parts, mold components, tribological applications, etc.

[Titankote™ C12 \[Me-DLC\]](#)

This Me-DLC coating is an excellent choice for tribological applications (cams, slides, shafts, etc). This coating utilizes the latest HIPIMS technology for improved adhesion characteristics and a defect-free inter-metallic layer.

[Titankote™ C14 \[C-DLC\]](#)

This C-DLC coating is an excellent choice for tribological applications. Its higher micro-hardness provides more abrasion protection than a Me-DLC. This coating utilizes the latest HIPIMS technology for improved adhesion characteristics and a defect-free inter-metallic layer.

[Titankote™ H \[Multi-layer TiN/TiCN/TiC/TiN\]](#)

This multi-layer CVD coating has excellent bonding properties that make it a great choice for heavy load applications like metal-forming, stamping, extrusion, and cold-heading. This coating also works well as a coating for carbide milling and turning inserts.

[Titankote™ H+ \[TiC\]](#)

This mono-layer CVD coating has excellent bonding properties that make it a great choice for heavy load applications like metal-forming, stamping, extrusion, and cold-heading. The high hardness of the TiC layer provides great abrasion resistance.

[Titankote™ H+S \[TiC/\(Mo, W\)S₂\]](#)

This coating has excellent bonding properties that make it a great choice for heavy load applications like metal-forming, stamping, extrusion, and cold-heading. The TiC CVD layer provides excellent abrasion resistance. The (Mo, W)₂ dry-film lubricant layer of this coating greatly reduces the friction between tooling and work piece. When the tooling substrate and the tolerances allow, this coating works extremely well when forming most materials.

[Titankote™ HV-820 \[Multi-layer TiN/TiCN/Al₂O₃/TiN\]](#)

This multi-layer CVD coating is typically used on carbide milling and turning inserts. This CVD coating employs a vacuum process to produce a better coating with great adhesion and wear characteristics.

[Titankote™ HV-840 \[Multi-layer TiN/TiCN/TiC/Al₂O₃\]](#)

This multi-layer CVD coating is typically used on carbide milling and turning inserts. This CVD coating employs a vacuum process to produce a better coating with great adhesion and wear characteristics. Also, the dielectric properties of the Al₂O₃ make it a common choice for coating resistance welding components.

[TDkote™ \[VC & other Complex Carbides\]](#)

TD is a great choice for heavy load applications like metal-forming, extrusion, and cold-heading. While its characteristics are similar to CVD, it is better suited when forming stainless steels and in hot forging applications.

[TDkote™+S \[VC-NbC/\(Mo, W\)S₂\]](#)

This coating provides increased performance for heavy load applications like metal-forming, extrusion, and cold-heading. The (Mo, W)₂ dry-film lubricant layer of this coating greatly reduces the friction between tooling and work piece, reduces pick-up of material, and improves the release properties. When the tooling substrate and the tolerances allow, this coating works well in forming most materials, especially stainless steels.

[Titankote™ B \[Complex Borides \(Fe₂B\)\]](#)

Boronizing is best suited for hot forging applications, but has been used successfully for general wear resistance of carbon steel components. Also, boronizing has been proven effective in reducing wear in numerous high temperature applications, including burner tubes and related components.