

Date: January 27, 2003

H.O.T. PRODUCT MEMO # 034-W

T9000 Series Grades Steel Turning



Product category: H.O.T. product

Application Area: General steel turning. All methods of steel turning.

Features and Benefits:

- Special newly developed “Double Bridge Technology” CVD coating. This new CVD coating exhibits very high adhesion strength, which offers extended tool life.
- Newly developed substrate with higher toughness and better crater wear resistance.
- 4 new grades can replace 11 of Tungaloy’s older grades for better inventory control.

Product Strengths:

- Newly developed CVD coating using the “Double Bridge Technology”. This allows for thicker coating layers and resistance to peeling.
- New substrate for better plastic deformation and crater wear resistance.
- The hardness of grade T9000 allows it to perform well at speeds up to 1000 sfm for roughing and 1500 sfm for finishing.
- The T9000 series is currently offered in current TS, TM, and TH chip breakers for steel turning and PS chip breaker for steel boring styles.

TURNING



TUNGALOY AMERICA

Concept of New T9000 series

Voice of Customer

High speed / High feed / Stability

Improvement of cutting performance

**1: Crater wear resistance
2: Plastic deformation resistance(Corner wear)**

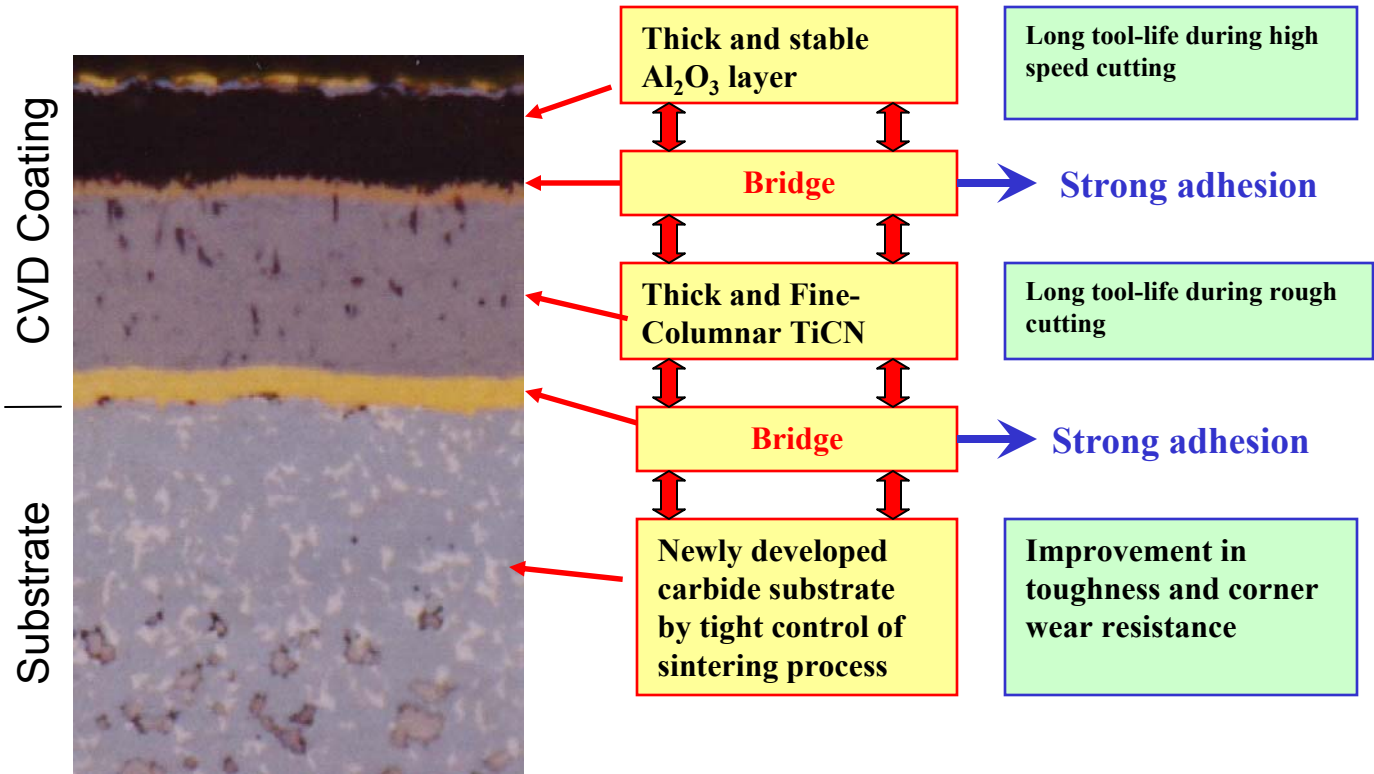
Characteristic of new grades

**Substrate: good plastic deformation resistance
Coatings: good peeling resistance by using
“Double-Bridge Technology”: thick coated layer**

Advantage: Tungaloy

New CVD Coating Technology

Featuring *“Double Bridge Technology”*

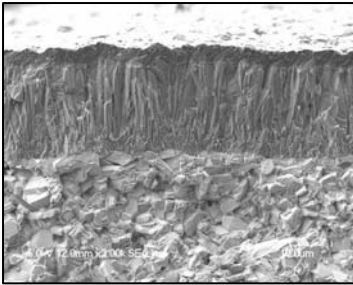


- Our new “Double Bridge Technology” provides high adhesion strength between the substrate and the coating and between the Al₂O₃ layer and the TiCN layers. This technology is an expansion of the special “bonding layer” that was used on the TD900 series.
- Because of the superior adhesion strength we can now apply thicker coating layers than previous grades without the problem of the coating flaking or peeling. Thicker coating layer brings higher cutting speeds and higher wear resistance.
- Additionally the TiCN columnar structure has been improved. The grain size now is finer than previous structure. This adds to the overall smoothness of the Al₂O₃ layer and the outer TiN layer.

Technical Information:

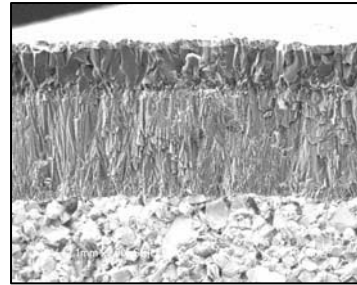
Characteristics of CVD Coatings

Fine-columnar TiCN, New interlayer , stable α -Al₂O₃



TD915, TD920

**Thickness
Al₂O₃ x 2.5
Total x 1.3**

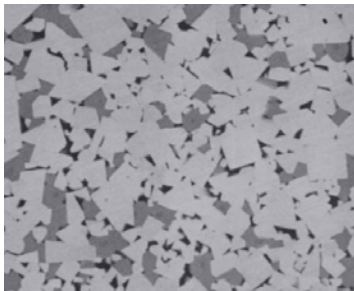


T9005, T9015

•New T9000 series have thicker coating layer than old grades and competitors grades.

“Double-Bridge Technology” enables thicker coatings to prevent peeling off.

Characteristics of Substrate



T700X Series



① Improvement of plastic deformation resistance and fracture resistance



TD900 Series



New T9000 Series



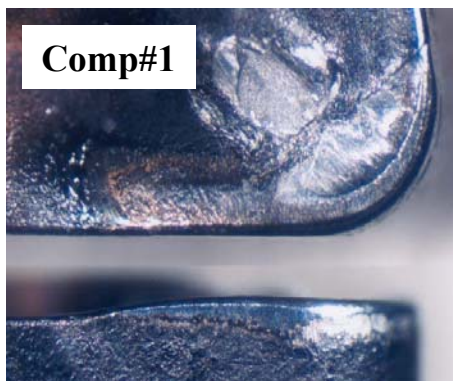
Adding to ① and ② Improvement of crater wear resistance

Technical Information:

T9005

- Features
 - Thick **Double Bridge** CVD coating
 - Newly developed substrate with high hardness and good toughness.
- Application area
 - High speed (sfm~1500) finish to rough turning of various steels.
 - High speed (sfm~1000) rough turning of ductile cast irons.

T9005 (P05) grade wear resistance
Material: 1055, V= 600 sfm, Ap=.080”,
F= .016 ipr wet 40 passes

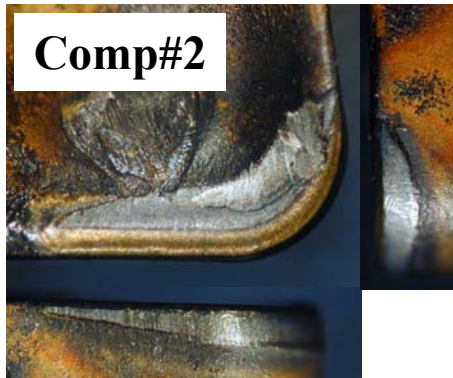
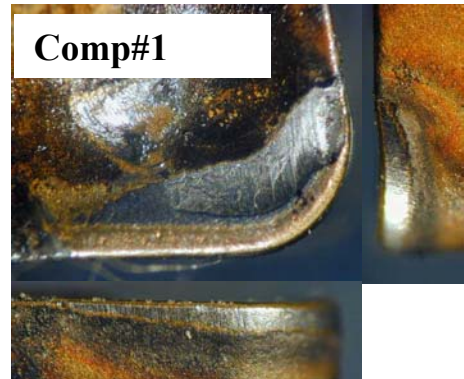
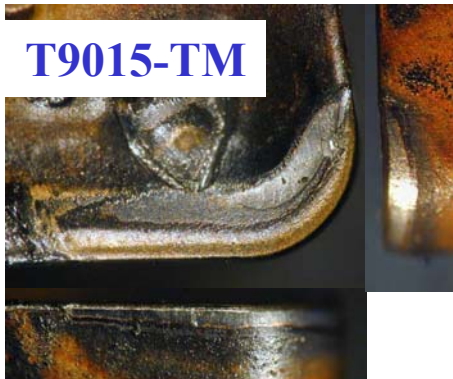


Technical Information:

T9015

- Features
 - Thick **Double Bridge** CVD coating
 - Newly developed substrate with balanced hardness and toughness.
- Application area
 - Medium to high speed (sfm~1000) medium to rough turning of various steels.
 - Medium speed (sfm~800) heavy turning of ductile cast irons.

T9015 (P15) grade wear resistance
Material: 4145, V= 660 sfm, Ap=.080”,
F= .016 ipr wet 120 passes

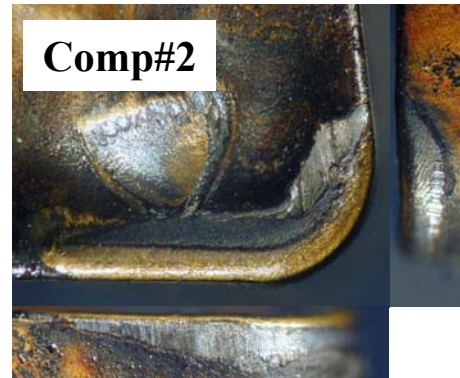
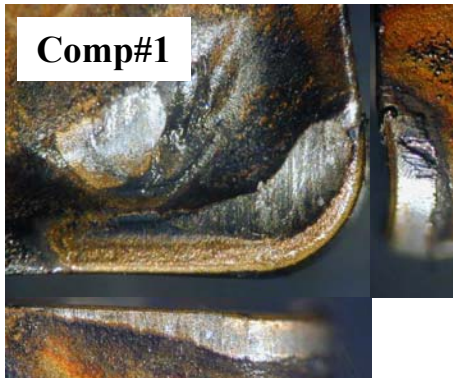
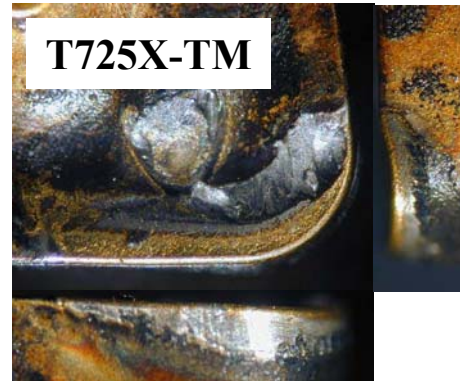


Technical Information:

T9025

- Features
 - Thick **Double Bridge** CVD coating
 - Newly developed substrate with good hardness and high toughness.
- Application area
 - Medium speed (sfm~800) rough turning of various steels.

T9025 (P25) grade wear resistance
Material: 4145, V= 660 sfm, Ap=.080”,
F= .016 ipr wet 90 passes



Technical Information:

T9035

- Features
 - Thick *Double Bridge* CVD coating
 - Newly developed substrate with good hardness and extra high toughness.
- Application area
 - Medium speed (sfm~800) heavy turning of various steels.

**CALL US TOLL FREE AT
888-554-8394
FOR MORE INFORMATION**