

# TECHNICAL SPECIFICATION

## CVD Tungsten

Archer Technicoat Ltd has more than 20 years experience in producing tungsten by Chemical Vapour Deposition (CVD). More recently, Tungsten has also been produced by the closely allied technique of Chemical Vapour Infiltration (CVI).

ATL also has many years experience in the production of Tungsten Carbide coatings by CVD and other metals such as Mo, Re, Nb, Ta, Ir, and Pt.

CVD Tungsten has a 100% dense columnar structure. A crack free material is produced which is impervious to Helium.

Coatings thicknesses from a few microns to a few mm are produced.

Freestanding CVD tungsten shapes are made by depositing onto a mandrel and then removing the mandrel by mechanical or chemical means. Complex and/or thin walled components such as crucibles, tubes are made by this method. Thicknesses from 0.1mm to >2mm are possible.

CVD tungsten is normally produced by the reduction of tungsten hexafluoride in the presence of excess hydrogen. A variety of pressures and temperatures can be employed.

### Typical customers:

- UKAEA
- EPFL
- AEA Technology
- Batelle
- Comet
- Philips
- SCKCEN (MYRRHA)

### Typical substrates

- Carbon (Graphite)
- Carbon (CFC)
- Silicon Carbide
- Stainless Steel
- RAFM Steel
- Copper
- Nickel
- Molybdenum
- Tantalum
- Alumina
- Diamond
- PCD tools



### Scale Up

ATL specialises in the development and scaling up of CVD processes. CVD reactors up to 1.5m diameter and 2m high have been built and operated.

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