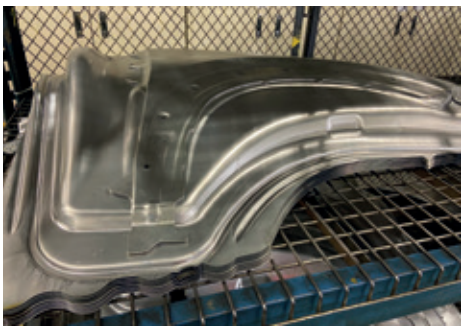
ionbond

Tetrabond™ ta-C for Forming and Molding Tools



Smooth Non-hydrogenated DLC Coating

Tetrabond™ is a non-hydrogenated, tetrahedral amorphous carbon (ta-C) coating that belongs to the class of diamond-like carbon (DLC) coatings. It is a ta-C coating that is tailored to the specific needs of forming and molding tools with an enhanced temperature stability of 500°C.

The thin, smooth and hard coating is designed to accurately reproduce the geometry of complex shaped dies and maintain maximum edge sharpness. Due to its high adhesion resistance against strongly adherent workpiece materials such as non-ferrous metals, Tetrabond™ is highly suited for forming aluminum. It has a proven track-record in stamping, trimming, blanking, and piercing as well as extrusion of aluminum alloys where it avoids the build-up of material on the tool.

Its very low coefficient of friction makes Tetrabond™ an economical solution to ensure excellent product quality and improving productivity by reducing the scrap rate on dies for forming non-ferrous metals and on ejector pins, heater blocks and heater tips for plastic molding.

Tetrabond™ can be deposited on a broad range of tooling materials including cold work and hot work steels as well as high speed steels (HSS) and cemented carbide regardless of the tool geometry. It can be applied again after stripping making the best use of expensive forming tools.

Technical Data

Material	ta-C
Technology	proprietary PVD Arc
Thickness range	0.5 – 2 µm
Roughness Ra (Rz) as deposited	<0.04 µm (<0.7 µm)
Adhesion	very good – HF1 to HF2 (depending on tooling material)
Microhardness HV 0.02	>3000
Coefficient of friction (dry)	<0.15
Max service temperature	500°C
Process temperature	<300°C
Color	Rainbow – dark grey – black