



Punch

ta-C coating on various punches



Performance comparison between Nanofilm's ta-C coatings and typical DLC coatings by conventional techniques

Name of Company		Company using Conventional Technologies	Nanofilm Technologies
Sample Photograph			
Coatings		DLC (Diamond Like Carbon) Coating	ta-C (Tetrahedral Amorphous Carbon) Coating
Process Description		Conventional Technologies	FCVA (Filtered Cathodic Vacuum Arc)
Thickness of the Coating / μm		~ 1.5	~ 0.6
Max. Process Temperature / $^{\circ}\text{C}$		200~400	~ 80
Deposition Rate (nm/s)		0.5	up to 1.5
Physical Properties	Hardness	~ 15 GPa	~ 64 GPa
	E-Modulus	~ 120 GPa	~ 509 GPa
	Frictional Coeff.	~ 0.14	~ 0.08
	Critical Load(mN) (50 μm tip)	~ 190 mN	up to 1250mN
Applicable Substrates		Metal, Ceramic, Glass, etc.	Metal, Ceramic, Glass, Plastic, etc.