

ta-C Coating System **DREVA 1050 LAM**



Main Features

- Field proven, reliable and refined equipment concept
- Laser-Arc-Modul (LAM) for ta-C deposition optional with macroparticle filter
- Arc evaporation sources for base coatings
- Option: magnetrons for sputtering (planar and tubular), including HIPIMS
- Hollow cathode for plasma pre-treatment
- Segmented substrate heating unit
- Usable coating volume: \varnothing 1,050mm x 1,100mm
- High capacity combined with high productivity
- Adjustable substrate carrier: dedicated holding fixtures for various tool and component designs
- Fully automated control system and data logging

Applications

- ta-C deposition in combination with subsequent polishing step for tribological systems
- Macroparticle filtered ta-C deposition for thin layers on 2D and 3D substrates

Process Benefits

- Low friction coefficient of polished ta-C down to $\mu < 0.01$, supra lubricity verified
- Indentation acc. to ISO 14577: E-modulus 300 – 600 GPa / hardness 40 – 80 GPa
- ta-C layer properties: sp^3/sp^2 up to 80%, H-content < 0.1 at % (at detection limit of NRA)
- Thermal stability of layer properties in use: $< 400^\circ\text{C}$ ($\Delta < 750^\circ\text{F}$)
- Low deposition temperature: $< 180^\circ\text{C}$ ($\Delta < 360^\circ\text{F}$)
- Many substrate materials: steel, hard metals, Si, Al, Ti-alloys, glass, polymers
- Certified ta-C adhesion to substrate material in tribological applications
- Layer thickness: up to $30\ \mu\text{m}$ in use
- Thick ta-C coatings $> 3\ \mu\text{m}$ can be polished to achieve a very smooth surface
- Production proven & effective deposition rate on substrates: up to $1\ \mu\text{m}/\text{h}$ on surface area of about 8m^2 per batch (macroparticle filtered ta-C deposition: up to $0.3\ \mu\text{m}/\text{h}$)

Customer Benefits

- Superior wear protection of up to $30\ \mu\text{m}$ thick ta-C layers with outstanding properties
- Deposition rate at the maximum physical limit shortens process time to a competitive advantage
- Production proven technology, equipment concept and layer properties

Range of Coatings

- Standard layer stack: Cr / ta-C
- Optional base coatings: Cr, Ti, CrN, WC,
- Other hard coatings on request