



# DREVA 1050 LAM

## HYDROGEN-FREE CARBON COATING SYSTEM

### 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: Sputter cathodes (planar and tubular), including HiPIMS
- Hollow cathode for plasma pre-treatment
- Segmented substrate heating unit
- Usable coating volume: Ø 1,050 mm x 1,100 mm
- 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  $30\text{ }\mu\text{m}$  in use
- Thick ta-C coatings  $> 3\text{ }\mu\text{m}$  can be polished to achieve a very smooth surface
- Production proven & effective deposition rate on substrates: up to  $1\text{ }\mu\text{m/h}$  on surface area of about  $8\text{ m}^2$  per batch (macroparticle filtered ta-C deposition: up to  $0.3\text{ }\mu\text{m/h}$ )

### CUSTOMER BENEFITS

- Superior wear protection of up to  $30\text{ }\mu\text{m}$  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

## WORLDWIDE SALES AND SERVICE

**VON ARDENNE GmbH** (headquarters) | Am Hahnweg 8 | 01328 DRESDEN | GERMANY

Sales: ☎ +49 (0) 351 2637 189 | [sales@vonardenne.com](mailto:sales@vonardenne.com)

Service: ☎ +49 (0) 351 2637 9400 | [support@vonardenne.com](mailto:support@vonardenne.com)

**VON ARDENNE Vacuum Equipment (Shanghai) Co., Ltd.** | ☎ +86 21 3769 0555 | ☎ +86 21 6173 0200 | [sales-vave@vonardenne.com](mailto:sales-vave@vonardenne.com); [support-vave@vonardenne.com](mailto:support-vave@vonardenne.com)

**VON ARDENNE Malaysia Sdn. Bhd.** | ☎ +60 4408 0080 | ☎ +60 4403 7363 | [sales-vama@vonardenne.com](mailto:sales-vama@vonardenne.com); [support-vama@vonardenne.com](mailto:support-vama@vonardenne.com)

**VON ARDENNE North America, Inc.** | Ohio office | ☎ +1 419 386 2789 | ☎ +1 419 873 6661 | [sales-vana@vonardenne.com](mailto:sales-vana@vonardenne.com); [support-vana@vonardenne.com](mailto:support-vana@vonardenne.com)

**VON ARDENNE Vietnam Co., Ltd.** | ☎ +84 966 29 29 50 | [sales-vavn@vonardenne.com](mailto:sales-vavn@vonardenne.com); [support-vavn@vonardenne.com](mailto:support-vavn@vonardenne.com)