



AUTOMOTIVE PARTS DLC SERIES

DLC

Multi Source

Tribological Solution

Hard Coating Solution

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System Summary

This coating machine can help manufacturers of cars and trucks to reduce the size of the engine without affecting the performance and service life of the vehicle and improve its efficiency.

This type surface treatment process can highly reduce friction and wear, which can open a new angle of view and technical solutions for the engine inside and outside.

Advantage:

- High wear resistance and low friction coating
- Matrix structure of diamond and graphite
- Dry friction coefficient of steel 0.1
- High hardness, up to 3.000HV
- Counterpart protection
- Chemically inert, avoid cold welding
- Excellent dry lubrication characteristic
- The deposition temperature <math><200^{\circ}\text{C}</math>

System Type

- Vertical Batch – Single or double door

PROCESS:



**MACHINE CONFIGURATION:**

Model	Chamber size	target	time	Standard coating	configuration
DKDLC-380	Ø380×H450mm	2pcs×3	3-5hours/cycle	TiN, CrN, AlTiN, AlCrN	Mechanical pump, Roots pump, holding pump and diffusion pump or molecular pump
DKDLC-600	Ø600×H650mm	2pcs×3	4-6hours/cycle	TiN, CrN, AlTiN, AlCrN	Mechanical pump, Roots pump, holding pump and diffusion pump or molecular pump
DKDLC-650	Ø650×H700mm	4pcs×3	3-6hours/cycle	TiN, CrN, AlTiN, AlCrN	Mechanical pump, Roots pump, holding pump and diffusion pump or molecular pump
DKDLC-900	Ø900×H950mm	6pcs×3	5-8hours/cycle	TiN, CrN, AlTiN, AlCrN	Mechanical pump, Roots pump, holding pump and diffusion pump or molecular pump

Coating:

- TiN, TiC, TiCN, TiAlN, TiAlCN, TiCrN, TiCrN, TiCrCN, TiAlCrN and other multilayer super hard coatings.

APPLICATION:

- Hybrid electric vehicles, internal combustion engines and motor size reduction
- Start/stop system (oil film break)
- Direct injection gasoline/diesel engine
- Automotive engine parts
- Mechanical racing coating
- Engine valves

PRODUCTS IMAGES:

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COATING PARAMETERS:

	Color	Hardness (HV)	Thickness (μm)	Max Temp (°C)	Friction Coefficient Vs 100Cr6	Most Common Equipment Configuration
TiN	Gold	2400-3000	1-4	500	0.5	2-4-6 Cathode Steered Arc Or Sputter
TiCN	Blue/Grey	2400-3200	1-3	400	0.3	
ZrN	Champagne	2000-2700	1-4	500	0.5	
ZrCN	Various	2000-3000	1-3	400	0.35	
CrN	Silver	1700-2800	1-5	700	0.5	
TiAlN	Dark Grey /Purple	2300-3000	1-4	800	0.55	
TiAlCN	Grey/Black	2500-3200	1-3	700	0.4	
AlTiN	Blue/Black	2400-3100	1-4	850	0.55	
AlCrN	Grey	2600-3200	1-4	950	0.5	
Ti-DLC	Grey-Black	700-1500	1-5	250	0.15	
Cr+WC/C	Grey-Black	800-1800	1-4	250	0.15	
Graphite/ Low H	Grey	500-2000	1-3	250	0.1	
CVD a-C:H	Grey-Black	1000-3000	1-3	280	0.05	Dual Cathode Sputter with Hot Filament
CVD Doped a-C:H	Grey-Black	1000-3000	1-3	280-350	0.05	



AFTER-SALES SERVICE & SUPPORTING:

Danko Vacuum Systems and our global service partners can provide onsite installation, repair service, preventative maintenance, applications and service training. We are available to provide support for your system 24/7.

Free warranty for full equipment for 12 months.

Long term providing the target, vacuum materials and accessories at reduced prices.

Providing vacuum coating machine operation and training of personnel at site.

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