



in line with your process

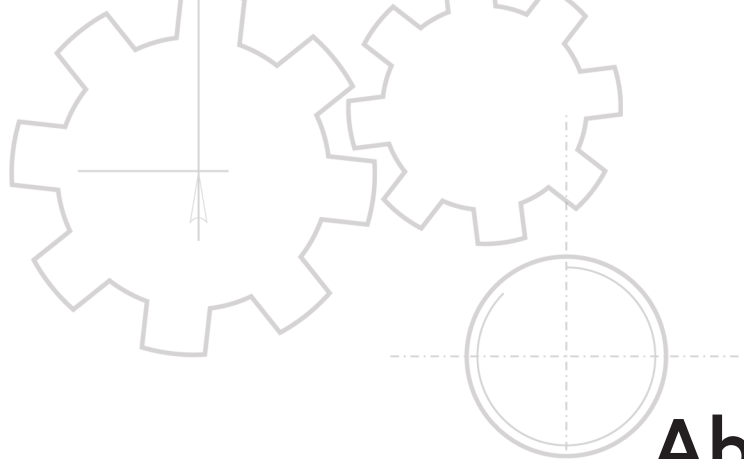
**DURABLE COLOR
& FUNCTIONAL**

**PVD COATING
SYSTEMS**



WITH PARTS, SERVICE, & SUPPORT FOR:

- KDF-1000i
- KDF-1500i
- KDF-3000i
- KDF-Cadence
- KDF-MAX.1500
- LEGACY VAPORTECH SYSTEMS



About KDF

KDF Technologies has added a new product line alongside its trusted in-line magnetron sputtering systems.

We are now the exclusive supplier of a complete line of cathodic arc & sputtering systems formerly manufactured under the VaporTech brand. For customers, nothing has changed except a new company name providing the same OEM equipment, parts and services from locations in the US, Europe, & Asia.



KDF Technologies, a subsidiary of Kurt J. Lesker Company, has a 30+ year history of building and servicing advanced sputtering PVD systems, including the flagship 974i Series.

We leverage our deep applications knowledge, quality engineering, and proven process expertise to manufacture these KDF-Series durable color and functional PVD batch systems, and we keep your legacy VaporTech systems running smoothly and productively throughout their lifetime.

Contact us for more information.

(201) 784-5005
sales@kdf.com

KDF Technologies
10 Volvo Drive, Rockleigh, NJ 07647

PVD and DLC systems

KDF-1000i system	4
KDF-1500i system	6
KDF- 3000i system	8
KDF-MAX1500	10
Cadence system	12

PVD coatings

Durable/decorative coatings	13
Functional/tribological coatings	14

KDF service, parts, & support

Training & installation	16
Spare parts, service, and support	18

Our smallest i-Series machine, the 1000i system offers a compact 6-rack design perfect for limited manufacturing space. This system is ideal for manufacturers who previously considered vacuum coating systems too complicated or expensive.

i-SERIES FEATURES

- Deposits both PVD and DLC coatings in the same chamber.
- Lower temperature cathodic arc process coats metal and plated plastic.
- Excellent color uniformity throughout the chamber.
- Simple maintenance and a low coating cost per batch.

KDF-1000i SYSTEM

SPECIFICATIONS

System dimensions:

3.4m L x 1.3m W x 2.5m H

Coating zone: 100cm x 87cm Ø

Number of racks: 6

Rack size: 100cm x 25.4cm Ø

Maximum load: 225kg

TECHNOLOGIES

- Low-temperature cathodic arc vapor deposition (LTAVD®)

PROCESSES

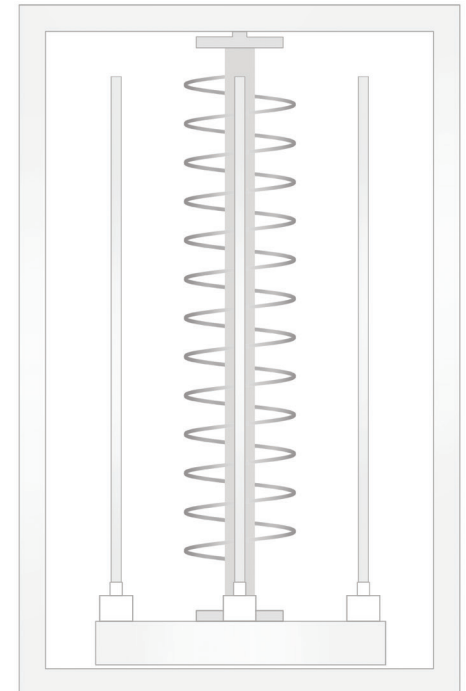
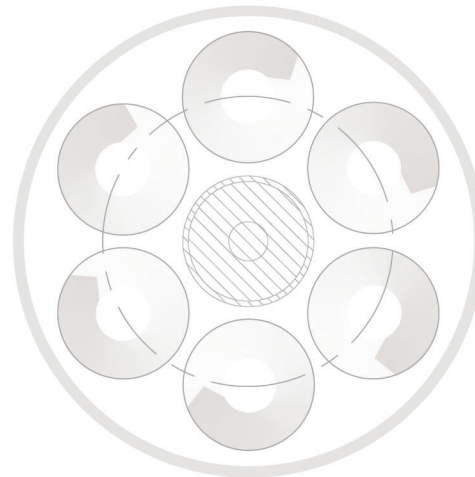
- Physical vapor deposition (PVD)
- Plasma-enhanced chemical vapor deposition (PECVD) to create diamond-like carbon (DLC) coatings

AVAILABLE COATINGS

Pure, alloyed, or reacted zirconium, titanium, chromium, carbon

HMI

- User-friendly graphic interface
- Built-in automated recipes
- Remote diagnostics





KDF-1500i SYSTEM

The 1500i system is the mid-sized i-Series machine, with 67% more capacity than the 1000i system. Its compact footprint is perfect for limited manufacturing space. The system combines cathodic arc and magnetron sputtering technologies in a single machine. This system is ideal for larger manufacturing operations and coating service providers.

i-SERIES FEATURES

- Deposits both PVD and DLC coatings in the same chamber.
- Lower temperature cathodic arc process coats metal and plated plastic.
- Excellent color uniformity throughout the chamber.
- Simple maintenance and a low coating cost per batch.
- Optional single or dual rotary magnetron sputtering sources.

SPECIFICATIONS

System dimensions:

4.0m L x 1.3m W x 2.7m H

Coating zone: 100cm x 119cm Ø

Number of racks: 10

Rack size: 100cm x 25.4cm Ø

Maximum load: 375kg

TECHNOLOGIES

- Low-temperature cathodic arc vapor deposition (LTAVD®)
- Magnetron sputtering

AVAILABLE COATINGS

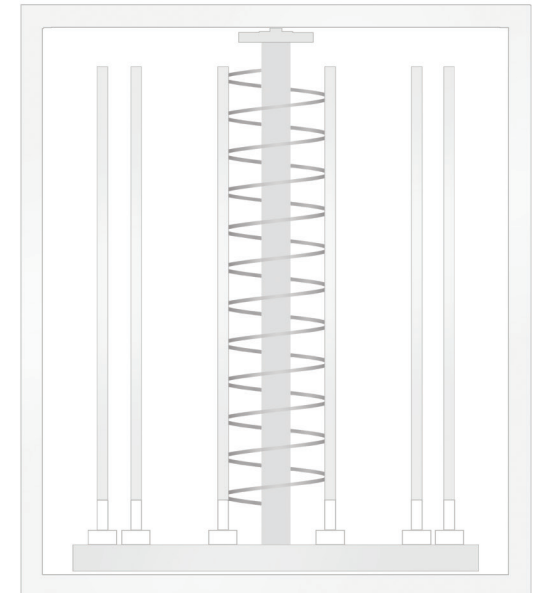
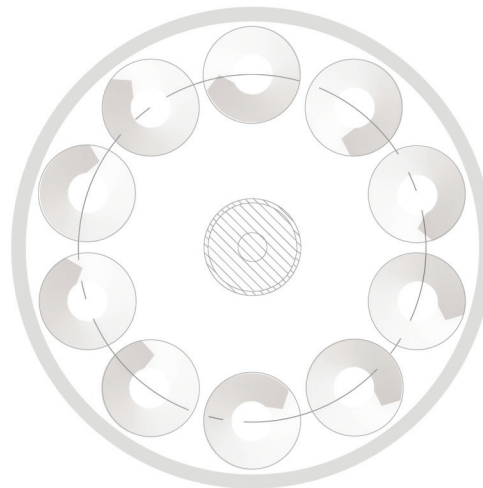
Pure, alloyed, or reacted zirconium, titanium, chromium, carbon

HMI

- User-friendly graphic interface
- Built-in automated recipes
- Remote diagnostics

PROCESSES

- Physical vapor deposition (PVD)
- Plasma-enhanced chemical vapor deposition (PECVD) to create diamond-like carbon (DLC) coatings





The streamlined 3000i system features the largest i-Series chamber in a smaller footprint than other industrial coaters. It offers high throughput and accommodates larger parts. It is ideal for large-scale operations and is used by leading manufacturing operations worldwide.

i-SERIES FEATURES

- Deposits both PVD and DLC coatings in the same chamber.
- Lower temperature cathodic arc process coats metal and plated plastic.
- Excellent color uniformity throughout the chamber.
- Simple maintenance and a low coating cost per batch.

KDF-3000i SYSTEM

SPECIFICATIONS

System dimensions:

4.3m L x 3.6m W x 3.8m H

Coating zone: 122cm x 143cm Ø

Number of racks: 16

Rack size: 122cm x 20.3cm Ø

Maximum load: 600kg

TECHNOLOGIES

- Low-temperature cathodic arc vapor deposition (LTAVD®)

PROCESSES

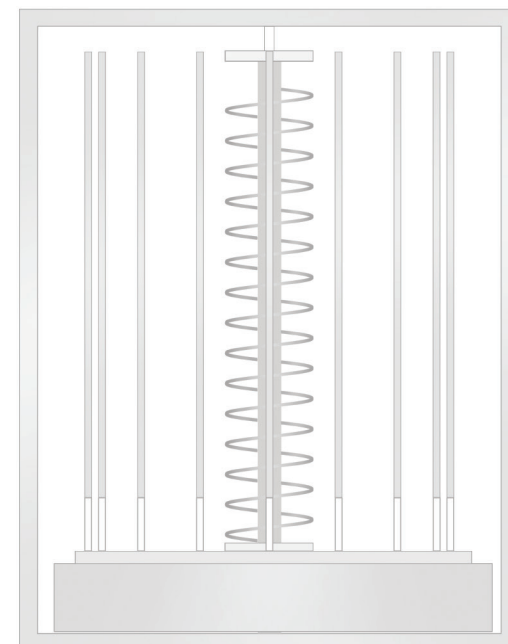
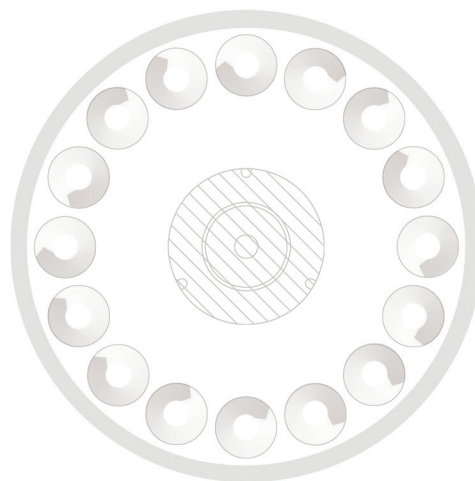
- Physical vapor deposition (PVD)
- Plasma-enhanced chemical vapor deposition (PECVD) to create diamond-like carbon (DLC) coatings

AVAILABLE COATINGS

Pure, alloyed, or reacted zirconium, titanium, chromium, carbon

HMI

- User-friendly graphic interface
- Built-in automated recipes
- Remote diagnostics





The flexible, efficient, cost-effective KDF.MAX1500 batch coater is ideal for industrial product manufacturers and service providers. Applications include cutting and forming tools, precision-engineered components, automotive/aerospace parts, medical devices, and other industrial products that benefit from lower friction, enhanced durability, and product longevity.

- Up to 6 cathodic arc or magnetron sputtering sources deposit binary, ternary, and quaternary metal-based and DLC coatings.
- Maximum throughput in a compact, easy-to-install system.
- Parts turntable is easily removed for loading and maintenance.
- Duplex process for PVD and plasma nitriding.

KDF.MAX1500 SYSTEM

SPECIFICATIONS

System dimensions:

4.8m L x 2.1m W x 2.7m H

Coating zone: 80cm x 88cm Ø

Number of racks: 6 or 12

Rack size: 80cm x 25.4cm Ø
(6 rack option)

Maximum load: 600kg

TECHNOLOGIES

- Cathodic arc vapor deposition
- Magnetron sputtering

PROCESSES

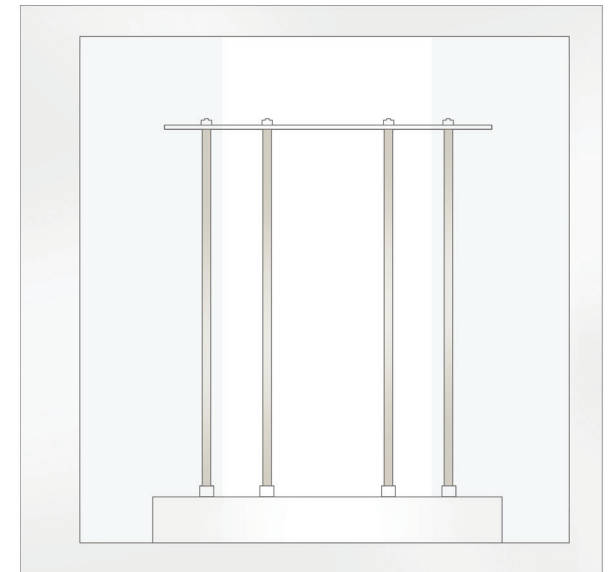
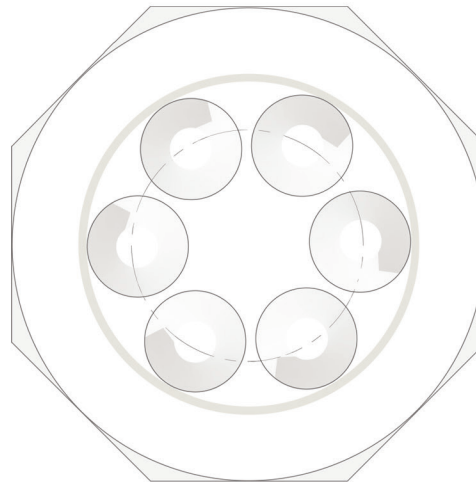
- Physical vapor deposition (PVD)
- Plasma nitriding
- Plasma-enhanced chemical vapor deposition (PECVD) to create diamond-like carbon (DLC) coatings

AVAILABLE COATINGS

- Pure, alloyed, or reacted zirconium,
- titanium, chromium, carbon

HMI

- User-friendly graphic interface
- Built-in automated recipes
- Remote diagnostics





KDF-CADENCE SYSTEM

The Cadence system's Remote Anode Assisted Magnetron Sputtering technology enhances coating structure, hardness, and wear resistance.

It's ideal for industrial tooling, medical devices, and other precision components.

SPECIFICATIONS

System dimensions:

3.8m L x 1.0m W x 2.4m H

Coating zone: 45.7cm x 20.3cm Ø

Number of racks: 1

Maximum load: 16kg

TECHNOLOGIES

- Remote Anode-Assisted Magnetron Sputtering (RAAMS)
- Magnetron sputtering

PROCESSES

- Physical vapor deposition (PVD)

AVAILABLE COATINGS

Pure, alloyed, or reacted zirconium, titanium, chromium

HMI

- User-friendly graphic interface
- Built-in automated recipes
- Remote diagnostics



COLOR PVD COATINGS

Choose from our rainbow of PVD color coatings to enhance your product's appearance and durability.

Deep Black



Cool Graphite



Graphite



Chrome



Stainless Steel



Nickel



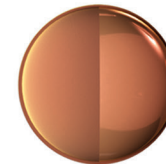
Gold



Rose Gold



Dark Copper



Light Bronze



Bronze



Dark Bronze



Blue Black



Vivid Blue



Purple



FUNCTIONAL COATINGS

for industrial products

Find the tribological coating that works best for your application.

Chromium Nitride (CrN)



Color: Metallic silver

Characteristics:

- Excellent hardness
- Excellent toughness
- Lubricity (reduces friction)
- Resistant to sliding & impact wear
- Corrosion-resistant, prevents oxidation
- Good release properties

Ideal for:

- Forming tools
- Machining tools (Cu/Al)
- Engine components
- Pump parts
- Replacement for functional plated hard chrome.

Specifications:

Coating hardness:

- 14-25 GPa
- 1400-2500 HV

Thickness range:

- Typically, 1-6 microns

Coefficient of friction (CoF):

- 0.5-0.7 (dry; against alumina)
- 0.5 (dry; against steel)

Max temp: 700° C

Titanium Nitride (TiN)



Color: Metallic gold

Characteristics:

- Excellent hardness
- Excellent toughness
- Biocompatible and non-toxic
- Lubricity (reduces friction)
- Compatible with acids, bases, and solvents.

Ideal for:

- Forming tools
- Machining tools
- Cutting/punching tools
- Rotating shank tools
- Machining iron alloys
- Medical devices and surgical tools

Specifications:

Coating hardness:

- 20-30 GPa
- 2000-3000 HV

Thickness range:

- Typically, 1-4 microns

Coefficient of friction (CoF):

- 0.5-0.6 (dry; against alumina)
- 0.4-0.6 (dry; against steel)

Max temp: 600° C

Diamond-Like-Carbon (DLC)



Color: Graphite to black

Characteristics:

- Very low friction, high hardness
- Resistant to sliding wear
- Biocompatible

Ideal for:

- Automotive components
- Medical devices
- Forming tools
- Cutting tools

Specifications:

Coating hardness:

- 15-23 GPa
- 500-2300 HV

Thickness range:

- Typically, 1-4 microns

Coefficient of friction (CoF):

- 0.08-0.11 (dry; against alumina)
- 0.1-0.2 (dry; against steel)

Max temp: 300° C

W-DLC



Color: Various grays

Characteristics:

- Very low friction
- Good hardness
- Low deposition temperature
- Biocompatible

Ideal for:

- Bearings
- Engine and transmission components
- Durable consumer goods

Specifications:

Coating hardness:

- 8-15 GPa
- 800-1500 HV

Thickness range:

- Typically, 1-4 microns

Coefficient of friction (CoF):

- 0.2 (dry; against steel)

Max temp: 300° C

Titanium Carbonitride (TiCN)



Color: Gray

Characteristics:

- High hardness
- Excellent abrasive wear-resistance
- ☑Biocompatible

Ideal for:

- Cutting/punching tools
- Dies for plastic injection molding
- High-pressure, low-speed machining

Specifications:

Coating hardness:

- 25-28 GPa
- 2500-2800 HV

Thickness range:

- Typically, 1-5 microns

Coefficient of friction (CoF):

- 0.3 (dry; against alumina)
- 0.2-0.3 (dry; against steel)

Max temp: 400° C

Zirconium Nitride (ZrN)



Color: Nickel to pale gold

Characteristics:

- High hardness
- High toughness
- Good wear resistance
- Excellent corrosion resistance
- Biocompatible

Ideal for:

- Cutting/punching tools
- Tooling for machining Al & Ti
- Medical devices and dental instruments

Specifications:

Coating hardness:

- 25-27 GPa
- 2500-2700 HV

Thickness range:

- Typically, 1-5 microns

Coefficient of friction (CoF):

- 0.3-0.4 (dry; against alumina)

Max temp: 600° C

Zirconium Oxy-Carbide (ZrOC)



Color: Dark gray to black

Characteristics:

- Moderate hardness, toughness, and wear resistance
- Excellent corrosion resistance

Ideal for:

- Automotive components
- Medical devices
- Forming tools
- Cutting tools

Specifications:

Coating hardness:

- 17-21 GPa
- 1700-2100 HV

Thickness range:

- Typically, 1-4 microns

Coefficient of friction (CoF):

- 0.3-0.4 (dry; against alumina)

Max temp: 600° C

Titanium Aluminum Nitride (TiAlN)



Color: Brown to blue-black

Characteristics:

- High hardness
- Excellent wear resistance at high temperatures

Ideal for:

- Automotive components
- Medical devices
- Forming tools
- Cutting tools

Specifications:

Coating hardness:

- 25-30 GPa
- 2500-3000 HV

Thickness range:

- Typically, 1-4 microns

Coefficient of friction (CoF):

- 0.6 (dry; against steel)

Max temp: 800° C

KDF-SERIES PRE-INSTALLATION SERVICES

- KDF-1000i
- KDF-Cadence
- KDF-1500i
- KDF-MAX.1500
- KDF-3000i

APPLICATIONS & COATING OPTIMIZATION

Our team of thin-film material scientists works with you to optimize coating processes for function, durability, and appearance. Covers coating feasibility, process optimization on your actual parts, and production readiness.

PRE-DELIVERY CONSULTING

Our pre-installation guide gives you all the information you need before system delivery. Our team can help you choose equipment location, purchase ancillary products, determine electrical and water needs, and ensure you're



KDF-SERIES INSTALLATION & TRAINING

DOCUMENTATION



Training materials & operator's manuals provide all the information you need for a successful installation and get you up and running quickly and confidently.

EXPERT ON-SITE SERVICES

System integration into existing manufacturing operations, installation support, and technician training on system operation, coating processes, and maintenance procedures.



KDF

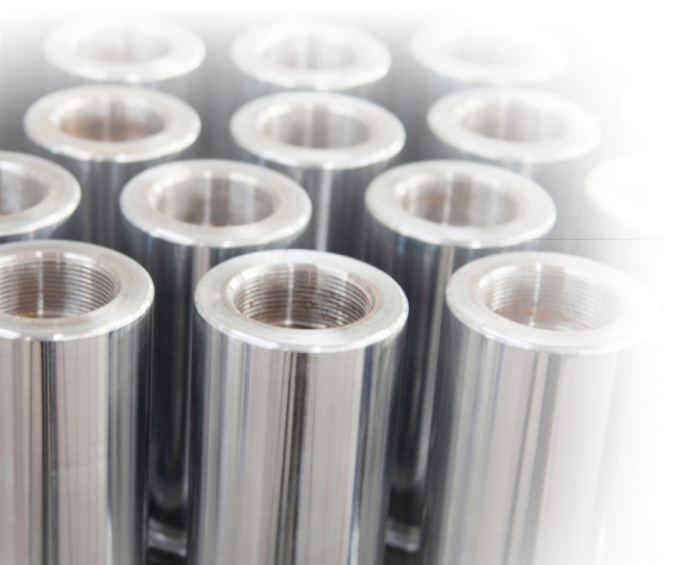
MAINTENANCE & SPARE PARTS

- KDF-1000i
- KDF-1500i
- KDF-3000i
- KDF-Cadence
- KDF-MAX.1500
- Legacy VaporTech systems



OEM-DESIGNED SPARE PARTS

Genuine parts designed to original VaporTech specifications, manufactured through KDF's engineering and in-house manufacturing capacity. Stocked across global inventory locations in North America, Europe, and Asia for fast turnaround, factory-certified to maximize system performance and minimize downtime.



SYSTEM UPGRADES

Factory-trained personnel available to install upgrades and repairs. Upgrades may include new arc or bias power supplies, controls, expanded process gas capability, or additional coating sources.



PREVENTATIVE MAINTENANCE & REPAIR

Full preventative maintenance including water control system, turntable, vacuum-pump system, electrical system, gas delivery system, chamber cleaning, shield replacement, and operational qualification. Restores system to like-new performance.



Contact us for more information.

(201) 784-5005
sales@kdf.com

KDF Technologies
10 Volvo Drive, Rockleigh, NJ 07647

