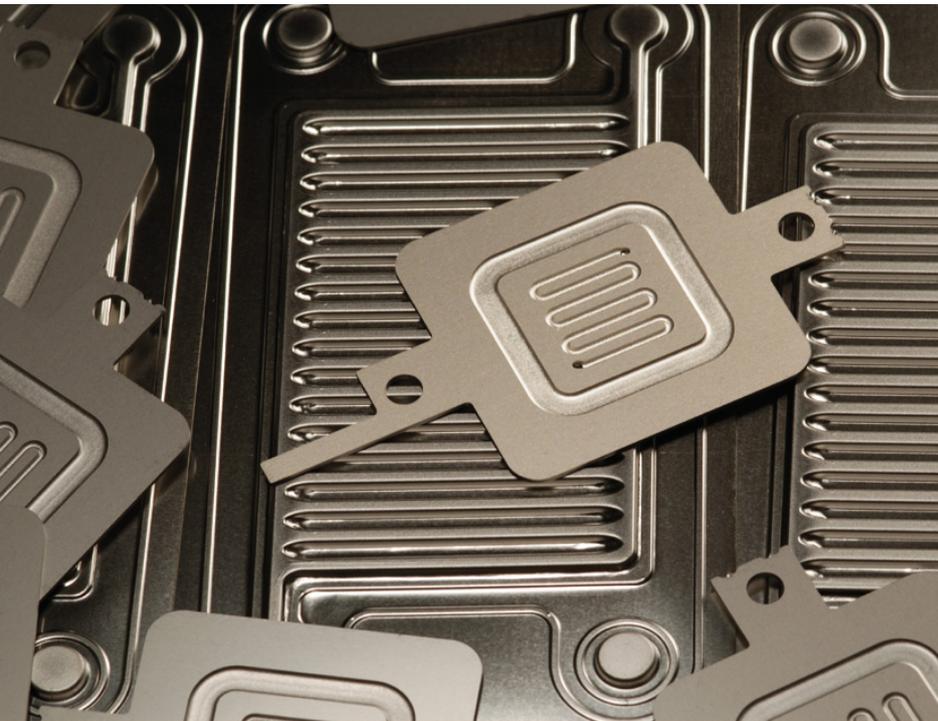


INLINEDCOATER™



High-throughput PVD

The versatile InlineCoater™ PVD (physical vapor deposition) system employs load-lock and multiple chamber parallel processing. The result, very short cycle times and a large variety of high-quality PVD coatings suitable for modern production.

IMPACT
COATINGS



PVD for modern production flows

Unlike traditional PVD tools, the unique design of the InlineCoater makes it well suited for continuous production flows, by handling small loads at a very high throughput. The result is both higher productivity and lower cost than competing PVD solutions, for a wide range of products.

DESIGNED FOR SHORT CYCLE TIMES

The InlineCoater load-lock allows re-loading of parts simultaneously with PVD processes running at full power in three separated process chambers. Hence, deposition runs the majority of time without interruption of loading and pump-down. Cycle times are kept to a minimum, typically 0,5-5 minutes depending on application.

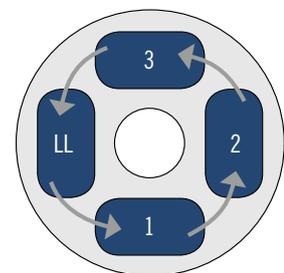
Parts are transferred between load-lock and process chambers without loss of vacuum. The design is simple and robust without gates or valves for transferring parts.

In the process chamber, the objects are always in the deposition plasma, resulting in high deposition rates. This makes process robust with very low contamination in the coated films. The system is fully automatic using preset process recipes and is operated via a touch screen.

The InlineCoater™ 300 and InlineCoater™ 500 are used in industrial manufacturing by Impact Coatings' customers, running 24 h a day and 7 days a week.

APPLICATION EXAMPLES

The systems are used for a wide range of decorative and functional coatings on metal products, e.g. wear resistant decorative coatings (mobile phones, watches, eyeglasses, etc.), electrically conductive coatings, as well as tribological coatings and corrosion protection. The tools are ideal also for many plastic applications, e.g. EMI shielding of electronics.



Parallel processing in the InlineCoater's load-lock (LL) and process chambers (1-3) results in very short cycle times.

Example A: Wear resistant decorative coating on metal product, coated by InlineCoater 500. One load ready every 200 seconds.

Example B: Typical EMI shield on plastic product, coated by InlineCoater 300. One load ready every 70 seconds.



State-of-the-art PVD processes

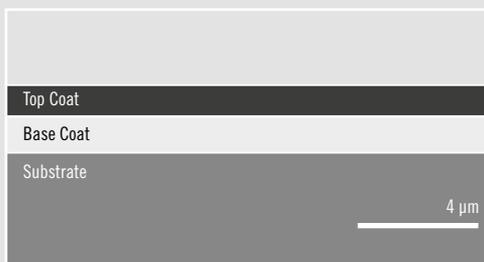
The flexible platform of the InlineCoater allows full use of state-of-the-art PVD processes, based on magnetron sputtering and cathodic arc evaporation. It can also be equipped for HiPIMS and PE-CVD.

Various plasma techniques are used for clean-etching and coating passivation. Reactive gases, e.g. O_2 , N_2 , CH_4 and C_2H_2 , are added for ceramic coatings and the process can be supervised using optical feedback control.

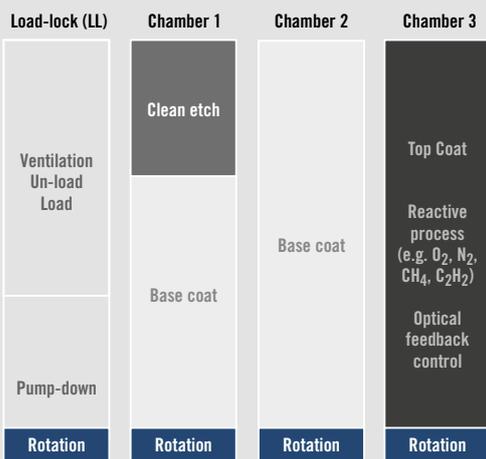
Different materials coated in separated chambers without breaking vacuum in between, ensures high quality layered coatings. 3D objects are also coated with very good uniformity using simultaneous double sided coating.

The InlineCoater is very suitable for efficient R&D work. The short cycle times allow hundreds of different coatings to be made in a day, e.g. allowing full use of design of experiment (DOE) development approaches. This should be compared to traditional PVD systems that can provide a few different coatings a day due to long cycle times.

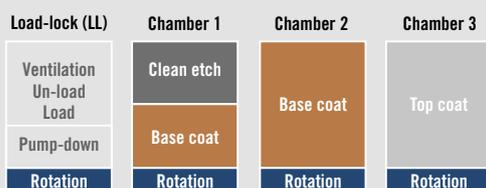
The developed processes are effectively industrialized and scaled to volume production, using the system's high-productivity parallel processing.



A highly wear resistant decorative coating is created with a base coat and a ceramic top coat.



Example A.



Example B.

Technical data

	InlineCoater™ 300	InlineCoater™ 500
Process chamber size (LxW)	300x180 mm (oval)	515x315 mm (rectangular)
Process chamber height (adaptable)	50-150 mm	75-150 mm
Process chambers	3	3
Load-lock	Yes	Yes
Process options	DC magnetron sputtering	DC magnetron sputtering
	Cathodic arc evaporation	Cathodic arc evaporation
	HiPIMS	HiPIMS
	PE-CVD	PE-CVD
	Pulsed plasma clean etching	Pulsed plasma clean etching
	Substrate biasing	Substrate biasing
	Reactive process	Reactive process
	Optical feedback control	Optical feedback control
Deposition source orientation	Top, bottom, or both	Top, bottom, or both
Number of deposition sources	1-6	1-6
Gas supply system	Up to 4 gases	Up to 6 gases
Base pressure	5x10 ⁻⁶ Torr	5x10 ⁻⁶ Torr
Cycle time, from	15 sec	20 sec
System dimensions	3200x2600x2400 mm	4600x1800x2400 mm
System weight	1700 kg	4700 kg
Installation requirements		
- Electricity	3-phase, 400 V, 63 A, 50 Hz	3-phase, 400 V, 2x126 A, 50 Hz
- Cooling water	30 l/min, <3 bar, <30°C (non-condensing)	120 l/min, <3 bar, <30°C (non-condensing)
- Compressed air	6 bar (oil free)	6 bar (oil free)

Note: These specifications can be changed without notice.



The InlineCoater systems are well suited for wear resistant decorative coatings on 3-dimensional parts. An example is this Black HardPhase™ ceramic coating that meets the toughest design and wear requirements.