

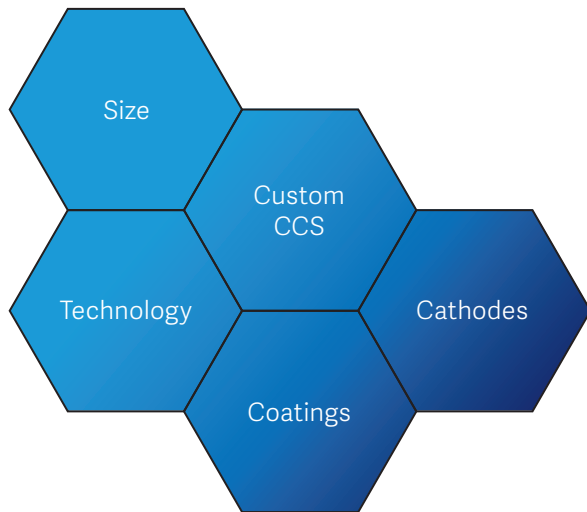


# 303

CUSTOM COATING  
SOLUTIONS

# CCS – Custom Coating Solutions

PLATIT's Custom Coating Solutions meet any special requirements. They are user-defined in every respect:

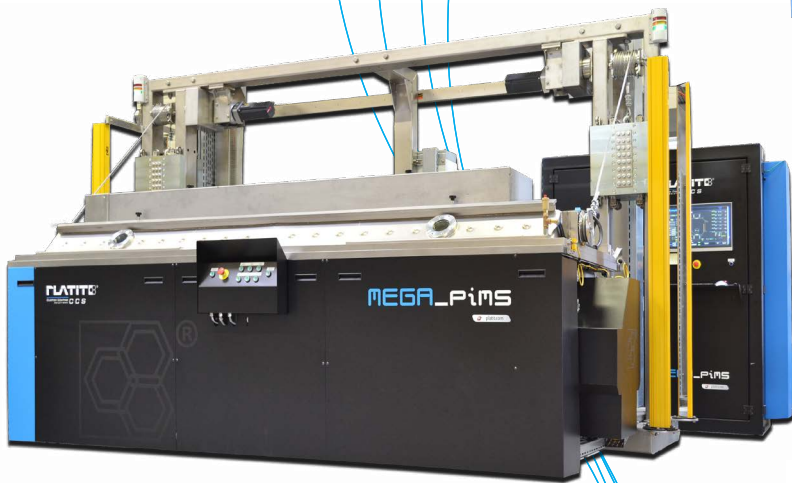
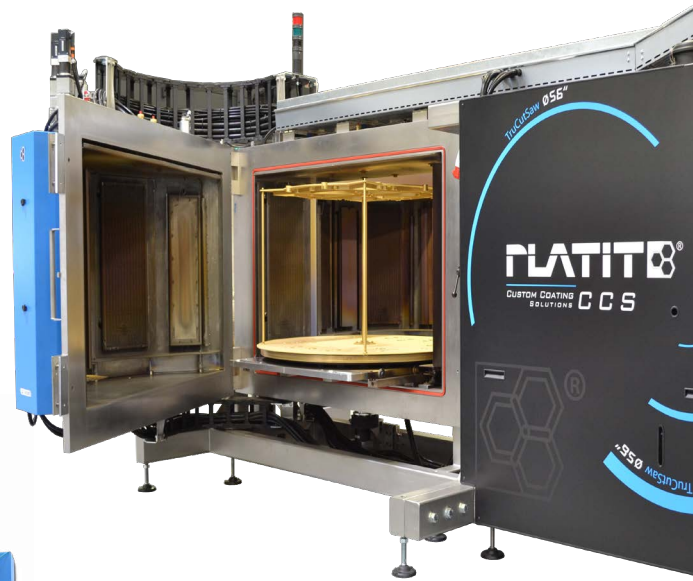


Engineers and technicians from PLATIT advise customers and design, develop, manufacture and program systems according to the individual requirements. They develop solutions in close exchange with customers and accompany them over the years by providing support and supplying spare parts.

For this purpose, PLATIT has established a network of companies for cooperation in the production of components. PLATIT also manufactures special holders as well as handling devices and works together with various partners to offer peripheral equipment adapted to the Custom Coating Solutions.

For inspiration, the following pages show different sample applications for which PLATIT has already developed, manufactured and delivered coating systems.





# CCS for DLC (PECVD)

The PL711 is a compact HiPIMS-based SPUTTER coating solution designed for applications requiring precise, low-temperature coating processes. Equipped with two planar HiPIMS cathodes, it enables the deposition of selected nitride and carbon-based coatings (DLC2) with high plasma density and excellent coating quality.

This Custom Coating Solution is ideally suited for sensitive components where thermal load must be minimized without compromising coating performance. The PL711 delivers dense,

smooth and well-adhering coatings, making it a dedicated solution for advanced DLC and functional nitride applications beyond standard coating requirements.

## Highlights

- Dense plasma with a high ionization degree in the carousel generates homogeneous coatings and reaches a high deposition rate
- Coatings from the PL711 provide outstandingly smooth surfaces with a high density, hardness and excellent adhesion.



## Specifications\_Sample Custom Coating Solution PL711

### Technologies applied:

2 × Planar SPUTTER cathode with HiPIMS technology

### Etching technologies applied:

- LGD (Lateral Glow Discharge)
- Plasma etching with argon, glow discharge
- Metal ion etching (Ti, Cr)

### Deposition types:

- SPUTTER nitride coatings
  - Reactive and non-reactive processes
  - Targets: Ti, Cr
  - Coating temperature up to 350°C
- SPUTTER Cr and PECVD a-C:H:Si
  - DLC2 (PECVD)
  - Targets: Cr
  - Coating temperature: 180 - 220 [°C]

### Load and cycle times:

- Max. coating volume:  $\varnothing$  600 × H 805 [mm]
- Max. coating height with defined coating thickness: 500 mm
- Max. load: 250 kg, higher weight upon request
- Max. load: 750 kg; higher weight upon request

### Modular carousel systems:

- 3 or 6 or 9 axes

### Software:

- Simple use and maintenance
- PLATIT SmartSoftware (PC and PLC system)
- Modern control system with touch screen
- Data recording and real-time display of process parameters and flow
- Manual and automatic process control
- Remote diagnostics and maintenance

### Machine dimensions:

- Footprint: W 3,450 × D 2,250 × H 2,595 [mm]



**Cathodes**  
2



**Cycle**  
≥ 8.5 h



**Max. Load**  
250 kg



**Solution**  
Turnkey



**Service**  
Worldwide



# CCS for XL Rotating Cathodes

Coating centers and manufacturers in various applications need to be flexible in coating high volume of small and large substrates together – from high-performance cutting tools to components and forming tools. This allows them to save time and costs per batch – without compromising coating performance.

PLATIT continuously adapts coating systems and their technologies to the current and future requirements. The PVD coating units that can produce such high-performance coatings are among the best in the world and are used by very successful high-tech manufacturing companies, regrinders as well as coating centers around the world.



## Sample Custom Coating Solution\_Pi1511

The Pi1511 is a high-volume PVD coating unit. It combines three rotating PLATIT LARC® XL cathodes positioned inside the door with two Planar ARC cathodes in the back of the chamber. The combination of round cathodes with high-performing Planar cathodes allows for the deposition of PLATIT Signature Coatings with familiar flexibility. The LARC® XL cathodes have a very long lifespan and thus guarantee high productivity at a low cost per tool. Customers with a strong focus on innovation and technology use the mix of planar and round cathodes in the Pi1511 to generate an exceptional performance advantage with the unique cathode configuration.

### Highlights:

- Uniquely flexible cathode composition with three rotating and two planar ARC cathodes for exclusive performance benefits
- Fast cathode exchange and long lifetime of the LARC® XL cathodes (LATERAL Rotating XL Cathode)
- MAC-3C (Magnetic ARC Confinement – Coil Current Compensation) for automated magnetic field adjustment to increase the lifetime of a target
- Possibility to develop in-house coatings
- User-friendly and intuitive software that meets the latest standards
- Focused on specific applications in Industry 4.0

## Specifications\_Sample Custom Coating Solution Pi1511

### Technologies applied:

- 3 × LARC® XL (Lateral Rotating XL Cathode) inside the door and 2 × Planar cathode with ARC technology in the back
- MAC-3C (Magnetic ARC Confinement – Coil Current Compensation) for automated magnetic field adjustment
- Quick cathode exchange
- Deposition of PLATIT Signature Coatings

### Etching technologies applied:

- LGD® (Lateral Glow Discharge)
- Plasma etching with argon, glow discharge
- Metal ion etching (Ti, Cr)

### Load and cycle times:

- Max. coating volume:  $\varnothing$  715 × H 805 [mm]
- Max. coating height with defined coating thickness: 711 mm
- Max. load: 750 kg; higher weight upon request

### Software:

- Simple use and maintenance
- PLATIT SmartSoftware (PC and PLC system)
- Modern control system with touch screen
- Statistics and help function via user interface
- Data recording and real-time display of process parameters and flow
- Manual and automatic process control
- Remote diagnostics and maintenance

### Machine dimensions:

- Footprint: W 5,000 × D 2,200 × H 2,500 [mm]



**Cathodes**  
2



**Cathodes**  
3



**Cycle**  
≥ 7 h



**Max. Load**  
750 kg



**Solution**  
Turnkey



**Service**  
Custom



# CCS for Saw Bands

The biggest challenge in the handling as well as coating of saw bands is their size as they are wound on a tool carrier, the coil. Due to circumferential speed, layer growth can result in varying coating thickness.

## **PLATIT has mastered this problem by developing and manufacturing a Custom Coating Solution:**

- To improve the handling, the coating chamber door opens sideways; the opened chamber door can be swiveled by 90° so the loading and unloading can take place from the left-hand side
- The coil is arranged at a certain angle to the deposition technology to ensure a constant coating

thickness distribution

- The LGD® (Lateral Glow Discharge) process is used for etching and improved coating adhesion
- To guarantee a uniform coating, the teeth and the back of the saw band are coated by different cathode types
- The coating process takes place at a maximum temperature of 500 °C to ensure that the physical and chemical properties of the saw band remain unchanged
- Coating increases the lifespan of saw bands and improves the cutting performance during sawing; the development of tool wear is reduced

## **Sample Custom Coating Solution\_Pi603**

To meet the specific product requirements, PLATIT has developed a state-of-the-art turnkey system featuring a high-vacuum custom coating solution and a single-chamber cleaning system. The saw bands are wound as a coil and are both cleaned and coated with the same product carrier, ensuring an efficient and seamless process.

In 2024, PLATIT successfully implemented this advanced system for a long-standing customer, integrating the latest technology to achieve high efficiency and performance. The newly developed process enables fast coating times while maintaining excellent quality and ease of operation. Even operators who are not experienced with such

technologies can work with this unit with ease. Pursuant to the open-source principle, PLATIT has transferred its knowledge to the customer so that they can benefit from the advantages of LARC® cathodes and flexibly combine as well as develop their own coatings.

This innovation underscores PLATIT's commitment to delivering cutting-edge solutions that enhance productivity and flexibility in industrial coating applications.

## Specifications\_Sample Custom Coating Solution Pi603

### Technologies applied:

- 3 × LARC® cathode by PLATIT with ARC technology
- 1 × Planar ARC cathode for uniform coating of the backs of saw bands

### Etching technologies applied:

- LGD®
- Plasma etching with argon, glow discharge
- Metal ion etching (Ti, Cr)

### Load and cycle times:

- 3 batches/day with a batch time of 7h
- Saw band diameter up to 1,360mm
- Inner packing diameter: 560mm
- Saw band height up to 100mm
- Saw band weight incl. carrier up to 600kg

### Software:

- Simple use and maintenance
- PLATIT SmartSoftware (PC and PLC system)
- Modern control system with touch screen
- Data recording and real-time display of process parameters and flow
- Manual and automatic process control
- Remote diagnostics and maintenance

### Machine dimensions:

- Footprint: W 5,900 × D 6,450 × H 3,100 [mm]

CCS

Pi603



Cathodes  
3



Cathodes  
1



Cycle  
7h



Max. Load  
600kg



Solution  
Turnkey



Service  
Custom



# CCS for Saw Blades

When it comes to coating saw blades, the biggest challenge is to find a coating unit that can efficiently coat large quantities in a single batch at a high level of quality without damaging the saw blades. Due to their high content of heat-sensitive steel, accurately controlling the process temperature is essential. If the process temperature is too high, the saw blade deforms and thus loses its cutting force.

## PLATIT designs special coating units to meet these challenges:

- The PVD unit has a temperature control system for coating saw blades; the temperature is kept within a very narrow range
- The use of ARC power supplies on alloyed targets improves the deposition rate and coating distribution, ensures uniform erosion and extends the target material's lifespan
- Pulsed cathodes and improved ARC distribution produce smoother coatings
- The coating chamber is suitable for large tools and substrates
- The modular carousel design provides maximum loading flexibility



A rail system ensures that the carousel trolley is always correctly aligned with the chamber, thereby making the loading and unloading of loads of up to 1800 kg easy. The height of the custom-designed carousel trolley can be adjusted at the touch of a button.

**CCS**  
PL2011



## Sample Custom Coating Solution\_PL2011

For the coating of large saw blades up to a  $\phi$  of 1,423 mm (56"), PLATIT has built a high-capacity coating unit. A custom-designed carousel with 6 configurations allows for maximum loading flexibility while maintaining the quality of the coating. Tools with a small or large diameter or mixed loads can be coated in one batch.

### The unit is equipped with two doors to provide:

- Optimal access to the chamber
- Simplified maintenance of both the machine and the cathodes
- Simplified batch management since a completed batch can be removed through one door and the next batch loaded immediately via the other door

## Specifications\_Sample Custom Coating Solution PL2011

### Technologies applied:

- 6 × Planar ARC cathode, 4 of which pulsed with ARC power supplies

### Etching technologies applied:

- LGD® (Lateral Glow Discharge) with 2 cathodes with a shutter and 2 cathodes acting as anodes
- Plasma etching with argon, glow discharge
- Metal ion etching (Ti, Cr)

### Load and cycle times:

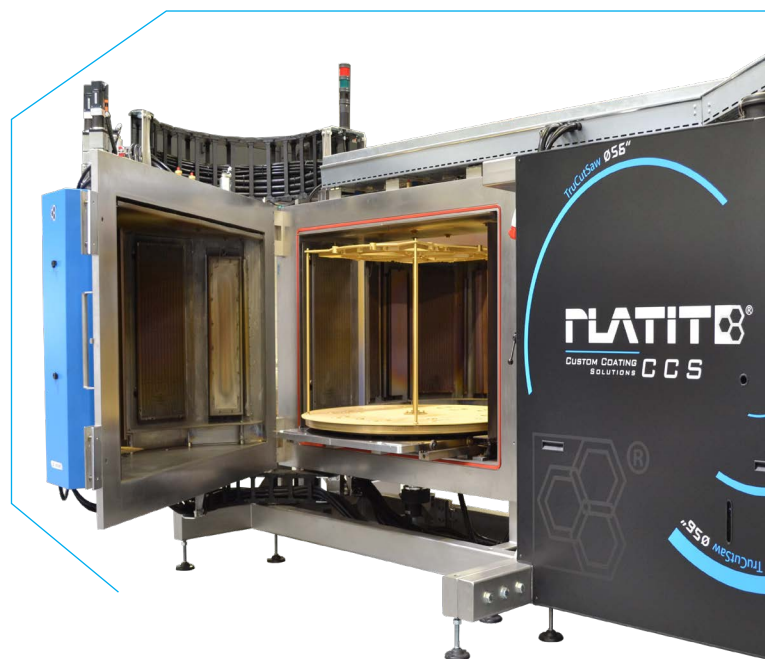
- Coating volume up to  $\varnothing$  1,400 × H 700 [mm]
- Load up to 1,800 kg

### Software:

- Simple use and maintenance
- PLATIT SmartSoftware (PC and PLC system)
- Modern control system with touch screen
- Data recording and real-time display of process parameters and flow
- Manual and automatic process control
- Remote diagnostics and maintenance

### Machine dimensions:

- Footprint: W 8,000 × D 5,800 × H 2,350 [mm]



### Batch times PL2011\*:

Saw blade (2.5 $\mu$ m), 1fold rot.	Max $\varnothing$ 1,400 [mm]/56 inch	20 pcs.	8 h
Saw blade (2.5 $\mu$ m), 2fold rot.	Max $\varnothing$ 460 [mm]/18 inch	150 pcs.	8 h
Saw blade (2.5 $\mu$ m), 2fold rot.	Max $\varnothing$ 650 [mm]/25.5 inch	75 pcs.	8 h
Saw blade (2.5 $\mu$ m), 2fold rot.	Max $\varnothing$ 350 [mm]/13.7 inch	200 pcs.	8 h
Saw blade (2.5 $\mu$ m), 2fold rot.	Max $\varnothing$ 250 [mm]/9.8 inch	250 pcs.	8 h
Band saw 1.6 mm / 0.06 inch (5 $\mu$ m), 1fold rot.	5 x Coil: $\varnothing$ 400– $\varnothing$ 680 [mm] $\varnothing$ 15.7– $\varnothing$ 26.7 inch	320 pcs.	8 h
Shank tools (2 $\mu$ m), 4fold rot.	$\varnothing$ 8 x 70 [mm] $\varnothing$ 0.31 x 2.7 inch	3,888 pcs.	≈ 11 h
Inserts (3 $\mu$ m), 4fold rot.	$\varnothing$ 12 x 4 [mm] $\varnothing$ 0.47 x 0.15 inch	45,360 pcs.	≈ 13 h

\* Average cycle times in an ongoing production with max. number of cathodes in use.



# CCS for Rollers

Because of their weight, large sizes and special geometry, rollers are difficult to handle and not suitable for coating in standard coating units. The coated surface must be defect free and prevent the workpiece material sticking on the tool.

## PLATIT develops Custom Coating Solutions tailored to special applications:

- The unit is set to lower system temperatures for heat-sensitive tools and machine components made of high-speed steel
- The vacuum system is further developed for steady coating thickness distribution for large chamber volumes
- Smoothest surface and micro-hardness uniformity of the coating is enabled by pulsed DC coating technology
- The design and handling concept can be flexibly adapted to the weight and size of the tools, ensuring easy operation and maximum user comfort; target change is uncomplicated

## Sample Custom Coating Solution\_Mega-PiMS

PLATIT has designed a Custom Coating Solution with simplified loading in which the rollers are positioned horizontally. The cathode is located at the bottom of

the coating chamber. PLATIT's SPUTTER technology is used to guarantee smooth coatings for high-gloss-polished or textured surfaces.



## Specifications\_Sample Custom Coating Solution Mega-PiMS

### Technologies applied:

- 1 × SPUTTER cathode
- 1 × anode on the opposite side

### Etching technologies applied:

- LGD® (Lateral Glow Discharge)
- Plasma etching with argon, glow discharge

### Load:

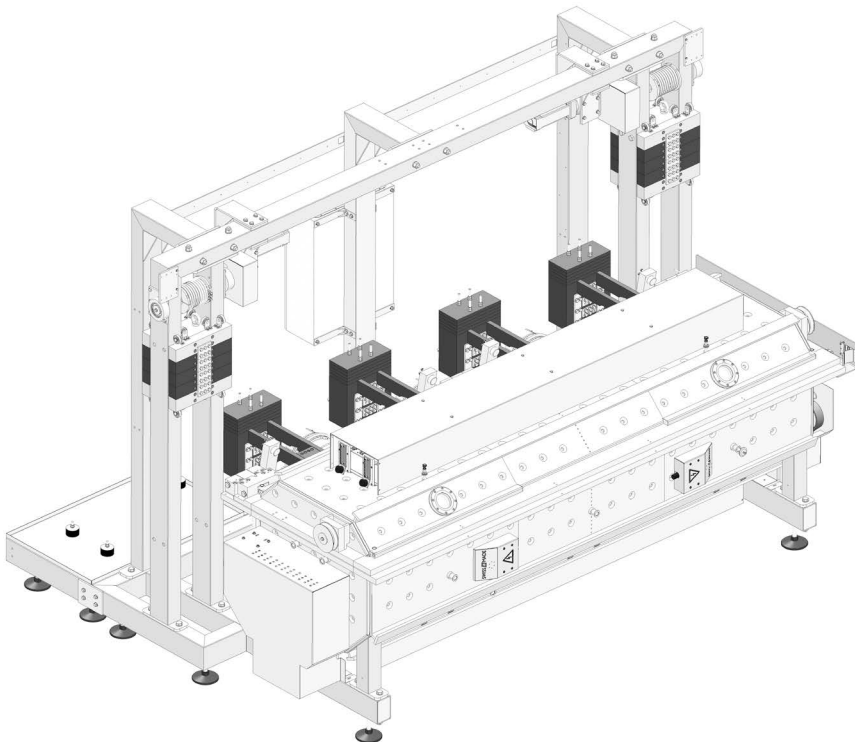
- Coating volume up to  $\varnothing$  600 × L 3,000 [mm]
- Coating volume with defined coating thickness up to  $\varnothing$  600 × L 2,000 [mm]
- Load up to 1,000 kg; higher weight upon request

### Software:

- Simple use and maintenance
- PLATIT SmartSoftware (PC and PLC system)
- Modern control system with touch screen
- Statistics and help function via user interface
- Data recording and real-time display of process parameters and flow
- Manual and automatic process control
- Remote diagnostics and maintenance

### Machine dimensions:

- Footprint (coating unit with electrical cabinet):  
W 4,100 × D 2,900 × H 2,700 +  
W 1,900 × D 1,100 × H 2,200 [mm]



**Cathodes**  
1



**Max. Load**  
1,000 kg



**Solution**  
Turnkey



**Service**  
Custom



**PLATIT AG**

Headquarters  
Eichholzstrasse 9  
CH-2545 Selzach  
info@platit.com  
+41 32 544 62 00

**PLATIT (Shanghai) Co., Ltd.**

Sales, R&D, Service, CEC  
No. 161 Rijjing Road (Shanghai) PFTZ  
CN-200131 Pudong Shanghai  
china@platit.com  
+86 2158 6739 76

**PLATIT a.s.**

Production, R&D, Service, CEC  
Průmyslová 3020/3  
CZ-78701 Šumperk  
info@platit.com  
+420 583 241 588

**PLATIT Inc.**

Sales, Service, CEC  
1312 Armour Blvd.,  
Mundelein IL 60060, US  
usa@platit.com  
+1 847 680 5270

COMPENDIUM



Advanced Coating Systems  
SWISS  QUALITY