

Coating of ‚Large Chunks‘

HIGH-TECH COATING SYSTEMS FOR LARGE FORMING TOOLS

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1511 Neue Beschichtungsanlage mit dedicated Schichten für Umformwerkzeuge

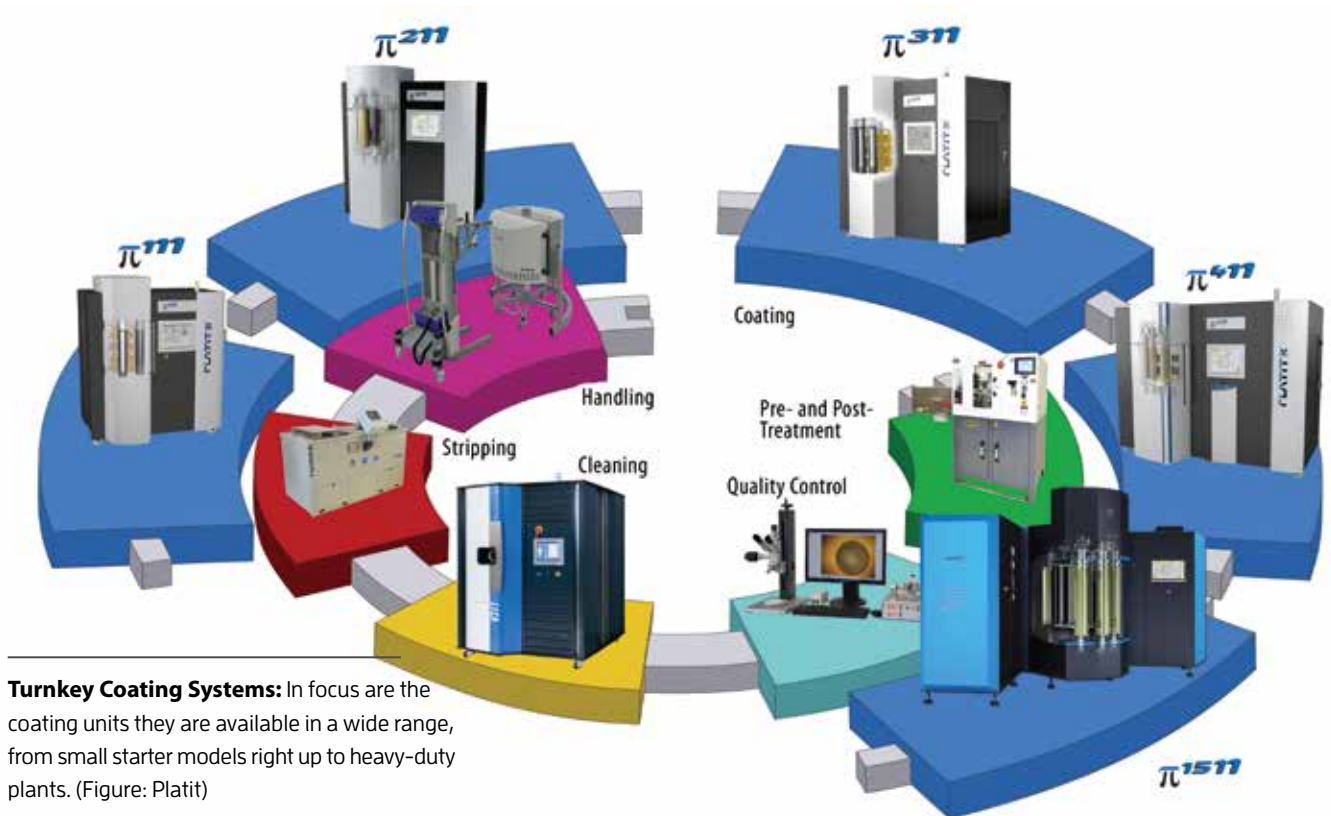
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Special reprint



Turnkey Coating Systems: In focus are the coating units they are available in a wide range, from small starter models right up to heavy-duty plants. (Figure: Platit)

HIGH-TECH COATING SYSTEMS FOR LARGE FORMING TOOLS

Coating of ‚Large Chunks‘

Forming tools can also be coated with highly productive and complex Triple- and QuadCoatings. This is enabled by a new machine series II of PLATIT: Rotating cathodes operate inside vacuum chambers at sizes of up to 1000 x 1000 x 1100 mm.

In the world of cutting tools, the steady development and application of innovative, highly productive, and complex coatings is normal and very dynamic. In stark contrast to that, conventional types and mono block-structured coatings, such as TiN or CrN, at the most CrTiN, are still being used for forming tools. With regard to large forming tools, the reason for this was often the size of the coating systems. It was said: "The large coating systems that are available are only capable of depositing simple coatings." Therefore, Platit has developed the π1511, which is capable of depositing state-of-the-art Triple- and QuadCoatings thanks to a

combination of three rotating and two planar cathodes.

The machine series II provides the entire selection of coating and peripheral systems, ranging from small start-up systems to large plants:

- π111 is the basic model for small companies (from 15 employees)
- π211 is a special small-scale system for economic depositing of hard DLC coatings, primarily intended for aluminum cutting
- π311 is a medium-size compact system for SMEs (from 40 employees)
- π411 is a flexible compact system that is capable of depositing various

high-performance coating with minimal change or modification efforts.

- π1511 is a large-scale system, primarily intended for large forming tools and for job coating centers

With Integrated Booster

You can already see this from the chamber: The dimensions of the vacuum chamber have been deliberately selected at W 1000 x D 1000 x H 1100 mm to accommodate large work pieces. The useful plasma volume is 700 x H 750 mm. The system operates at base material loads of max. 400 kg (optional

800 kg). The machine is delivered as a compact unit and is ready for operation within a few hours. The dimensions of the machine are W 4882 x D 2181 x H 3354 mm. Depositing can be simultaneously performed by all five cathodes at very high power (3x LARC-XL (Lateral Rotating Cathodes) and 2x Planar-ARC Cathodes).

The three rotating cathodes are responsible for production of the high-tech coatings (such as Nanocomposites, triple, quad, and oxide coatings). The two planar cathodes are boosters used to achieve high degrees of productivity. The innovations developed for series II have also been incorporated in π 15II. These include the LGD (Lateral Glow Discharge) feature for optimal adhesion, as well as tube, virtual, and planar shutters for ensuring optimal erosion, cleaning, and protection of the targets.

The Coatings of π 1511

The major goal of π 15II is ensuring depositing of state-of-the-art coatings for large-scale forming tools. Today, state-of-the-art coatings are built up in a rather complex manner, with various phases. The sub-coatings of the structure being used exactly where they can best achieve the optimal and required performance. The purpose of TripleCoatings is a combination of three characteristics:

- optimal adhesive coat (e.g. TiN, CrN)
- tough core coat (e.g. multi- or nano-layer coatings)
- hard, wear-resistant top coat (e.g. Nanocomposites)

The purpose of QuadCoatings is integration of an additional, fourth characteristic, e.g. extreme heat insulation through oxide coatings (AlON) or lubrication through CrCN. The four coating types that are most important for forming tools include two Triple- and two QuadCoatings (see table below).

Open Source as a Principle and Outlook

Continuous research and development of the π 15II system allows for depositing of the most innovative coatings, also for large forming tools. Platit works according to the Open Source principle. Ac-

ording to this concept, know-how is disclosed and very detailed and intense training is offered with regard to systems and coatings. In this way, users are enabled to start production within very short periods. (Regardless of job or in-house coaters.)

The combination of π 15II system and Open-Source principle will pave the way for Triple- and QuadCoatings into the world of applications of large

forming tools. "It is not a matter of Yes or No, but merely a matter of time." ♦

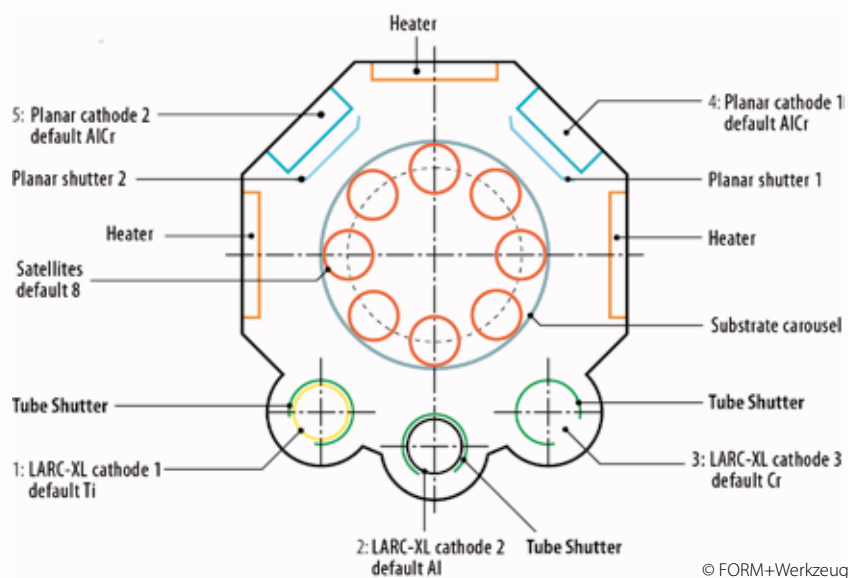
Translated by Platit AG

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Cathode configuration of the π 1511: The 5 cathodes can work simultaneously. The planar cathodes work as boosters for the coating process for high productivity. The shutters ensure the optimal erosion, cleaning, and protection of the targets. (Figure: Platit)



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The most important coatings for forming tools: These include two Triple- and two QuadCoatings, and a coating for cutting tools used for hard milling. (Source: Platit)

CrTiN ³	AlCrN ³	nACRo ⁴	ALL ⁴	TiXCo ⁴
For forming tools used in injection molding and in low-temperature forming. Hard and tough thanks to nanolayer structure.	For tools used in punching and fine blanking. Acts as separating agent between the punch and the steel band.	For forming tools used in injection molding and extrusion. For forming of extremely abrasive and highly alloyed materials.	The all-rounder. Stoichiometry: CrTiN – AlCrTiN-G – Al/CrN-Nanolayer – AlCrTiN. It's not the „girl“ but the „Queen of everything“.	For cutting tools used in hard milling of forming tools. Optimal application at a hardness range between 56 and 62 HRC.

Fair News



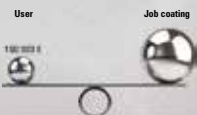
Coating Machines Series 11

- Leaflet π^{411}
- Quad-Gearboxes and light weight carousels
- Video ME Series 11



New π^{1511} - The Large Plant

- Leaflet π^{1511}
- Paper: Form + Werkzeug
- Video ME π^{1511}



When can a SME think about Investing into a coating system?

- Paper: WerkzeugTechnik
- Paper: SQP



New QUAD Coatings⁴® for Milling – 2015

- Paper: WerkzeugTechnik



Turnkey Coating System

- CT40 Productive Decoating
- MET6 CNC Brushing Machine
- Compendium edition 56
- Short catalog edition 7



Extended Coating Recipe Set

- Leaflet T&Q 2015