

BERNEX

ADVANCED CHEMICAL VAPOR DEPOSITION EQUIPMENT

Bernex™ CVD systems are the most reliable CVD machines on the market. Since their introduction in the 1970s, they have proven their reliability in hundreds of installations worldwide. They are used by all major manufacturers of cemented carbide inserts and are increasingly used for coatings on forming tools.



Bernex invests in continuous innovation of process technology, ensuring state-of-the-art coatings and a long lifetime of your investment. The systems are delivered with the most advanced process know-how and recipes for coatings on cemented carbides, steel and other substrate materials. The turn-key Bernex™ BPXpro CVD systems have a dual computer system, self-diagnostic capabilities and fully automatic process control.

Fully modular system architecture

Optional CVD modules allow extension of the standard installation and enhance the production portfolio, improve operational procedures and provide increased safety for operators as

well as the environment. Some modular system options are:

- High textured α and κ Al₂O₃ module
- Automated TiCl₄ filling system
- TiAlN module

The TiAlN module, one of our latest developments, is a very low pressure system for the production of high-aluminum-content TiAlN coatings at moderate temperatures. This expands your potential range of CVD coatings (VLPS) with TiAlN, a proven coating for cutting tools that was only available in PVD up to now. With a higher aluminum content, CVD TiAlN features higher resistance to oxidation and wear.

TECHNICAL DATA BERNEX™ BPXPRO

BERNEX™ CVD

Models	BPXpro 750L	BPXpro 750S	BPXpro 530L	BPXpro 530S	BPXpro 325L	BPXpro 325S
Reactor dimensions (mm)	750 x 1600	750 x 1250	530 x 1600	530 x 1250	325 x 1600	325 x 1250
Max.load weight (kg)	600	600	400	340	270	200
Power requirement (kVA)	210	180	100	95	85	75
Heating zones	5	4	5	4	5	4
Deposition temp	700–1050 °C					
Types of coating	TiC/TiN, TiCN, α Al ₂ O ₃ – κ Al ₂ O ₃ , HfN, ZrN, ZrC, TaC, Zr(CN), TiZr(CN), ZrO ₂ , Ti(CBN), TiB ₂ , TiAlN					
Applications	Forms, dies		Inserts, forms, dies			

Process temperatures: High temperature (HT) CVD: 900-1050 °C
 Moderate temperature (MT) CVD: 700-900 °C

Process pressures: 2-900 mbar

OPTIONS

■ α and κ Al ₂ O ₃ module	■ 3 rd liquid line
■ TiAlN (VLPS and NH ₃) module	■ Additional process gas
■ BCl ₃ module	■ Automated TiCl ₄ filling station
■ MT (Moderate Temperature) TiCN module	■ Central neutralization system for 2 to 10 coating systems
■ HTC (High Temperature Chlorinator 450 °C) module for Hf and Zr	■ Reactor cleaning station
■ ICM (Internal Chlorinator 900-1000 °C) module for Cr	■ ITH (Integrated Traversing Hoist) for 1 to 4 units
■ ECM (External Chlorinator > 400 °C) module for Ta or Nb	■ Full turn-key facility solutions

Additional interesting, application-oriented variations can be deposited by layering coatings, using interface layers or applying different coating morphologies, textures and grain sizes.

