

ALD Vacuum Technologies

High Tech is our Business

VKPgr

Vacuum Sintering Plant for Debinding,
Sintering & Overpressure Sintering

**OPTIMUM PERFORMANCE &
MATERIALS FOR HIGHEST DEMANDS:**

improved density & higher strength
long-lasting durability
enhanced hardness of cemented carbides



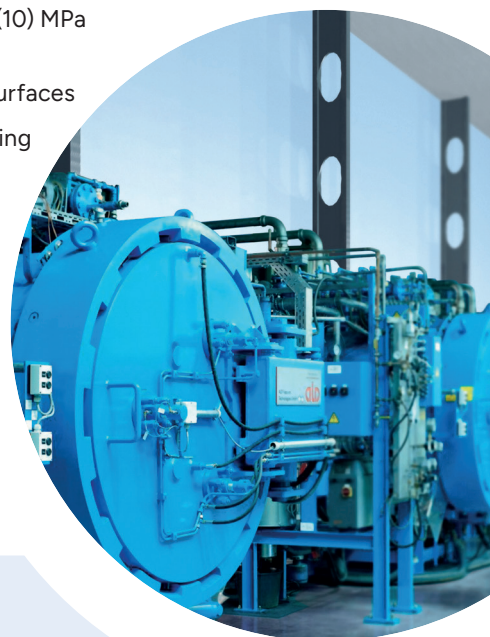
ald

www.ald-vt.com

fast cooling unit with external high pressure cooling gas circuit

MAIN FEATURES

- ▶ resistance heated furnace with 3 independently controlled heating circuits in the 6 (10) MPa furnace version additional door heaters available
- ▶ long-life special graphite felt insulation cylinder, low in maintenance with of plane surfaces
- ▶ round muffle & heating insert inside round pressure vessel for flexible and high loading
- ▶ high temperature uniformity through the symmetrical arrangement of the heating circuits (longitudinal and cross axis)
- ▶ hydraulically operated graphite muffle lids and insulation doors, sealed by a spring system (ensures sealing during thermal expansion/shrinking)
- ▶ easyloading by means of a graphite roller track in the furnace
- ▶ very simple, time-saving assembly & maintenance of inner furnace components many identical parts, minimum requirement for spare parts
- ▶ earth fault detectors for all heating circuits prevent "arcing"
- ▶ automatic recognition of wear on the graphite heaters (ALD-Patent EP 01101496)



Multi-dewaxing system for up to four different debinding processes (optional)

- Argon-low-pressure dewaxing for paraffin
- H₂-low-pressure dewaxing for paraffin
- H₂-overpressure dewaxing for paraffin with burnoff
- H₂-overpressure debinding for PEG with burnoff
- automated temperature control of condenser via process progress (ALD-Patent EP 1046448 A2)
- ramp evacuation function to prevent too fast evaporation of binding material

Application of process gases

- sinter-HIP with high pressure Argon gas
- sintering with process gases such as Ar, H₂, N₂, CH₄, CO & others by means of mass flow controllers
- sinter gas feed directly into the muffle & onto the work pieces
- pressure control in the working space during debinding & sintering
- Argon partial pressure control prevents cobalt evaporation
- safety equipment for the use of flammable process gases

VKPr 6 MPa / 10 MPa | VACUUM SINTERING PLANT FOR DEBINDING, SINTERING & HIGHPRESSURE SINTERING (DGRL)

Installation size	Nominal charge dimension (mm)	Maximum working capacity (mm)	Rated temperature (°C)	Installed transformer capacity (kVA) (6 MPa / 10 MPa)	Cooling water consumption (m ³ /h) (6 MPa / 10 MPa)
STANDARD INSTALLATION SIZES FOR CHARGES OF A LENGTH OF 900 mm					
VKPr 30/30/90	300 x 300 x 900	Ø 500 x 1165	1600	350 / 385	13 / 17
VKPr 50/50/90	500 x 500 x 900	Ø 800 x 1165	1600	485 / 600	18 / 22
VKPr 50/50/180	500 x 500 x 1800	Ø 800 x 2105	1600	590 / 740	26 / 30
VKPr 50/50/270	500 x 500 x 2700	Ø 800 x 3005	1600	720 / 860	35 / 39
STANDARD INSTALLATION SIZES FOR CHARGES OF A LENGTH OF 750 mm					
VKPr 50/50/150	500 x 500 x 1500	Ø 800 x 1765	1600	485 / 690	24 / 28
VKPr 50/50/230	500 x 500 x 2300	Ø 800 x 2605	1600	740 / 860	31 / 35
VKPr 50/50/300	500 x 500 x 3000	Ø 800 x 3305	1600	800 / 960	39 / 43

additional sizes on request



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