

Chamber Retort Furnaces for Catalytic Debinding also as Combi Furnaces for Catalytic or Thermal Debinding



NRA 40/02 with cupboard for the acid pump

NRA 40/02 CDB and NRA 150/02 CDB

The chamber retort furnaces NRA 40/02 CDB and NRA 150/02 CDB are specially developed for catalytic debinding of ceramics and metallic powder injection molded parts according to the BASF CATAMOLD®-method. They are equipped with a gastight retort with inside heating and gas circulation. During catalytic debinding, the polyacetal-containing (POM) binder chemically decomposes in the oven under nitric acid and is carried out of the oven by a nitrogen carrier gas and burned in an exhaust gas torch. Both furnaces have a comprehensive safety package to protect the operator and the surrounding.

Executed as combi furnace series CTDB these models can be used for either catalytic or thermal debinding incl. presintering if necessary and possible. The presintered parts can be easily transferred into the sintering furnace. The sintering furnace remains clean as no residual binder can exhaust anymore.

- Process retort made of acid-resistant stainless steel 1.4571 with large swiveling door
- Four-side heating inside the retort through chromium steel tube heating elements for good temperature uniformity
- Horizontal gas circulation for uniform distribution of the process atmosphere
- Acid pump and acid vessel (to be provided by the customer) accommodated in the furnace frame
- Gas-fired exhaust gas torch with flame monitoring
- Extensive safety package with redundantly operating safety PLC for safe operation with nitric acid

- Large, graphic touch panel H 3700 for entering data and for process visualization



Acid pump for nitric acid

Version NRA 40/02 CDB

- Tmax 200 °C
- Gas supply system with fixed values

Additional version NRA 150/02 CDB

- Automatic gas supply system for nitrogen with mass flow controller
- Adjustable acid volume and correspondingly adjusted gas supply volumes

Version NRS .. CTDB

- Safety package for thermal, inert debinding see page 46
- Available for 600 °C and 900 °C with atmosphere circulation



Process chamber with internal heating

Additional equipment

- Scale for the nitric acid vessel, connected to the PLC monitors the acid consumption and visualizes the fill level of the acid vessel (NRA 150/02 CDB)
- NCC software package for visualization, control and charge documentation of the process
- Automatic gas supply system for nitrogen with mass flow controller (NRA 40/02 CDB)
- Adjustable acid volume and correspondingly adjusted gas supply volumes (NRA 40/02 CDB)
- Lift truck for easy loading of the furnace
- Cupboard for acid pump
- Emergency tank for flushing in case of a failure

Model	Tmax °C	Inner dimensions in mm			Volume in l	Outer dimensions in mm			Heating power in kW ²	Electrical connection*	Weight in kg	Acidic quantity (HNO ₃)	Nitrogen (N ₂)
		w	d	h		W	D	H					
NRA 40/02 CDB	200	300	450	300	40	1100	1250	2450	5	3-phase ¹	800	max. 70 ml/h	1000 l/h
NRA 150/02 CDB	200	450	700	450	150	1650	1960	2850	23	3-phase ¹	1650	max. 180 ml/h	max. 4000 l/h

¹Heating only between two phases

²Depending on furnace design connected load might be higher

*Please see page 80 for more information about supply voltage