

진공로(Hot Wall Retort Vacuum Furnace)

APPLICATION

- 3D print post heat treatment(annealing, stress relieving)
- Metal annealing, bright annealing, tempering
- Debinding or Pyrolysis process
- Thermal recycling
- Catalyst thermal process

FEATURES

- Vacuum tight metal retort
- Water cooled door with viton rubber
- Radiation shield
- Light weight ceramic fiber insulation
- High energy efficiency
- Over-temperature protection
- Touch panel auto-control, data logger
- Cooling water flowing alarm
- Inserted retort thermocouple control
- Cost effective special solution



OPTIONS

- Process gas control system(available flammable & explosive gases)
- High vacuum system(roots pump or turbomolecular pump)
- Inconel retort increased temperature up to 1150°C
- Higher heating power & heater grade
- Chiller system
- PLC control & touch panel process control
- Dual loading depth

Stress relieving heat treatment, annealing, heat treatment : Parts which were manufactured directly with the laser in the 3D printer often require a thermal post treatment under protective gas up to 1100 °C for improving the mechanic properties. Furnaces of the series KF with gas purging are suitable for ferrous alloys. For sensitive metals such as titanium which will be treated subsequently at approx. 950 °C in vacuum or in very clean argon (99,999 % = N5 quality), furnaces of the series KF are suitable. These are used also for stainless steels.

Universal and cost-effective furnaces for heat treatment and for sintering of parts, manufactured by rapid prototyping processes, made of ferrous alloys, non-ferrous metals, stainless steels, titanium or aluminium under protective gas or vacuum atmosphere are based on our series KF.

* 기술 사양

	KF 420	KF 320	KF 150
External dim.(외형치수) W x H x D(mm)	960 x 1150 x 1800	860 x 1100 x 1800	800 x 1000 x 1700
Work space, W x H x D(mm)	280 x 280 x 280	210 x 210 x 210	100 x 100 x 100
Chamber Φ (mm)	400	300	150
Tmax vacuum & gas atmosphere($^{\circ}$ C)	1000/1150(option)	1000/1150(option)	1000/1150(option)
Temp. Distribution at 950 $^{\circ}$ C (K) according to AMS_2750E	± 5	± 5	± 5
Max. heat-up-rate(K/min)	10/17(option)	10/17(option)	12/20(option)
Cooling time from 950 $^{\circ}$ C - 150 $^{\circ}$ C(empty)	15	15	13
Heating element / shape	Kanthal A1 / cylindrical SIC heater(option)	Kanthal A1 / cylindrical SIC heater(option)	Kanthal A1 / cylindrical SIC heater(option)
Insulation	Ceramic fiber module	Ceramic fiber module	Ceramic fiber module
Power(Kw)(380V, 3P)	20/25(option)	14/18(option)	6/12(option)
Vacuum range(torr) empty furnace, ambient temp-clean, cold	5×10^{-2} /10-5(option)	5×10^{-2} /10-5(option)	5×10^{-2} /10-5(option)
Vacuum pump range(torr)	1×10^{-3}	1×10^{-3}	1×10^{-3}
Cooling water required Flow(liter/min)	6-8	6-8	6-8
Cooling water max. inlet temp.($^{\circ}$ C)	23	23	23
Gas flow-meter(option)	Ball flow-meter/MFC	Ball flow-meter/MFC	Ball flow-meter/MFC
Controller(auto-control)	7.5" Touch panel & Data logger	7.5" Touch panel & Data logger	7.5" Touch panel & Data logger
Complete system(Appr. Kg)	600	600	500
Dual loading Depth	option	option	option



● 구 버전 타입



● 최신 6세대 버전

