

TECHNICAL SPECIFICATION

ISOBARIC VAPOUR ALUMINISING TYPE IVA1824 HL

The IVA1824 HL is designed for the vapour aluminising of nickel based gas turbine components. The out of pack process results in uniform and defect free coatings over the most complex shapes. The maximum weight of work and fixturing is 150Kg.



Vapour aluminising (IVA) is a form of out-of-pack aluminising operated at a low constant pressure to achieve good throwing power and uniformity of layer thickness. The process operates at temperatures between 900 and 1050°C and at pressures in the range 1 to 50 mbar. The aluminium content of the resulting layer can be adjusted by the process conditions and also by the subsequent heat treatment, which can be carried out in the same furnace.

IVA has a number of advantages over pack aluminising:

1. Faster cycle time because the parts are not surrounded by pack.
2. Better coating uniformity on each part.
3. Less variation in coating thickness from one place in the retort to another.
4. No coating defects caused by pack inclusions.
5. Lower cost of operation because less pack material is used.
6. Less pack material to be dumped safely.

The IVA1824 HL consists of a single horizontal retort together with a vacuum pump and electrical control box mounted on a mobile skid. The normal operating temperature range is 900 to 1100°C. The normal operating pressure range is 1 to 50 mbar.

The furnace is stationary and the retort is moved via a pallet truck or forklift truck. The furnace can be maintained at the working temperature, thus decreasing the heat-up time.

The retort is supported on a steel frame that also provides a platform for the loading, and unloading of the removable work trays and for any maintenance work. The frame also supports the vacuum pump, and associated control, piping, valves & sensor.

Optional additional retorts can be added which could be for IVA, atmospheric pack aluminising or heat treatment.

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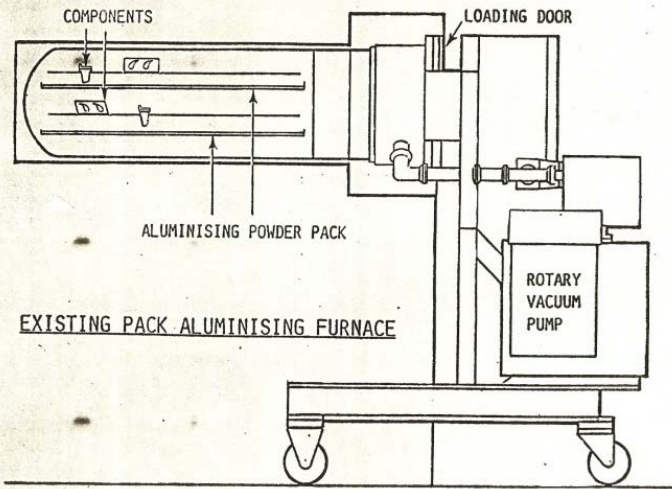
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Vapour aluminising Production retort



Specification for IVA1824 HL:

Retort overall dimensions:	457mm x 1350mm
Retort working zone:	440mm x 600mm
Tray sizes:	1 off 420 x 600mm, 2 off 320 x 600mm
Temperature range:	900 - 1100°C
Temperature control:	Single zone with PID control
Temperature measurement:	S-Type Pt/Rh thermocouple
Pressure range:	1-50 mbar (standard control range)
	Lowest operating pressure: 1 mbar
	Highest operating pressure: 1000 mbar
Pressure control:	Motorised line valve
Pressure measurement:	Absolute pressure transducer
Vacuum pump:	Edwards E1M80 Rotary Vane Oil Pump
	Capacity: 80m ³ /Hr (50 cfm) approx.
Gas control:	Argon purge controlled by mass flow controller
Electricity:	45 KVA
Cooling water:	10 litre/min
Materials of construction:	Furnace shell: carbon steel
	Insulation: Fire brick backed by ceramic felt
	Door & Top: All ceramic felt
	Retort: Inconel 601
	Heaters: Kanthal A1
	Vacuum lines: Stainless steel
Will it fit?	2.5 x 2 x 3 m (8 x 6 x 10 feet) plus space for loading & unloading

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