

TECHNICAL SPECIFICATION

ISOBARIC VAPOUR ALUMINISING TYPE IVA2436

The IVA2436 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 300Kg.



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. More rapid 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 IVA2436 consists of a double-pumped vacuum furnace and retort. The normal operating temperature range is 900 to 1150°C. The normal operating pressure range is 1 to 50 mbar. The double pumping arrangement is necessary to ensure that the inner hot retort wall does not collapse.

The retort is stationary and the furnace is moved via an overhead crane from its parked position, already at the working temperature, thus decreasing the heat-up time.

The stationary 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.

Because the furnace is removed from the retort while at running temperature, a cooling shroud is placed around it to prevent damage and to accelerate cooling.

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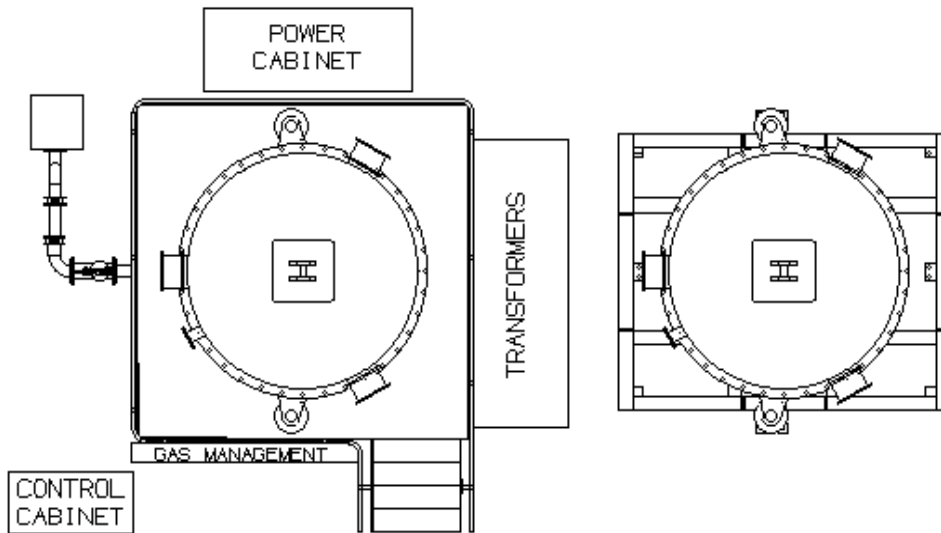
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Specification for IVA2436:

Retort overall dimensions:	600mm x 1700mm
Retort working zone:	600mm x 900mm
Temperature range:	900 - 1150°C
Temperature control:	3 zones with PID control
Temperature measurement:	S-Type Pt/Rh thermocouples in each zone
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:	Rotary oil Piston Pump
	Capacity: 250m ³ /Hr (150 cfm) approx.
Gas control:	Argon purge controlled by mass flow controller
Electricity:	100 KVA
Cooling water:	20 litre/min
Materials of construction:	Furnace shell: carbon steel
	Retort: Inconel 601
	Heaters: Kanthal A1
	Vacuum lines: Stainless steel
Will it fit?	10 x 6.5 x 6 m (32 x 21 x 20 feet)

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