

# Vacuum Furnaces



**HINDHIVAC** manufactures special Vacuum Diffusion Bonding Hot Presses for joining dissimilar metals, diffusion bonding, super elastic forming etc. HINDHIVAC designs, develops and manufactures 20 to 200 tonne vacuum diffusion bonding hot press tailored to customer specifications, wherein the chamber, the chamber size, tonnage of the press, pressure, temperature are specifically suited to the requirements of the customer.

These presses are made for prestigious clients like Nuclear Power Corporation, Defence Metallurgical Research Laboratory and Bhabha Atomic Research Centre, etc

The presses are equipped with liberally sized hot zone for uniform temperature in the working area. The vacuum bonding hot presses are totally programmable and are operated from a compact centre console which houses the PLC and all other electric controlled gear

High vacuum pumping system consisting of Oil Diffusion pump, Rotary Vacuum pump etc., to achieve high vacuum in the chamber.

All the weldments are done by inert gas welding and are internally welded to minimize virtual leaks. The chambers are electro-polished for low outgassing.

Temperature programmers are provided for controlled heating which can be programmed as per the requirement of the process. The stroke lengths are also adjustable and timers are provided for controlling the time of compacting.

## VACUUM HOT PRESS

Description	20 Ton	50 Ton	200 Ton
1. Furnace chamber	Horizontally mounted, double walled, water cooled	Vertically mounted, double walled, split construction	Vertically mounted, double walled,
2. Chamber size	800 dia x 400L (mm)	850 dia x 1000H	1000 dia x 1200H
3. Effective zone	180W x 180H x 320D (mm)	205 dia x 250H	500 dia x 500H
4. Heating elements	Molybdenum	Graphite	Molybdenum
5. Heat insulation	Graphite felt	Graphite Board	Molybdenum, SS radiational sheet
6. Max. temperature	1200°C + 5	2200°C + 5	1400°C + 5
7. Vacuum Pumping System			
a. Diffusion pump type & speed	OD-250 / 3000 Lit/Sec	OD-350, 6000 Lit/Sec	OD-350, 6000 Lit/Sec
b. Roots Pump type & speed		RD-500, 500 M <sup>3</sup> /Hr.	RD-375, 375 M <sup>3</sup> /Hr.
c. Rotary vacuum pump	CD-120 / 120 M <sup>3</sup> /Hr.	FD-60, 60 M <sup>3</sup> /Hr.	CP-250, 250 M <sup>3</sup> /Hr.
d. High vacuum valve	Electro Pneumatic right angle 250 mm	Electro Pneumatic right angle 14".	Electro Pneumatic right angle 14"
e. Vacuum gauges	Pirani, Penning gauge to read vacuum for 1000 mbar to 10 <sup>-5</sup> mbar	Micro processor based Pirani, Penning gauge to read vacuum for 0.5 mbar to 10 <sup>-3</sup> & 10 <sup>-3</sup> to 10 <sup>-6</sup> mbar	Digital Pirani, Penning gauge to read vacuum for 0.5 mbar to 10 <sup>-3</sup> & 10 <sup>-3</sup> to 10 <sup>-6</sup> mbar
f. Ultimate vacuum	5x10 <sup>-6</sup> mbar	5x10 <sup>-6</sup> mbar	5x10 <sup>-6</sup> mbar
g. Working vacuum	5x10 <sup>-5</sup> mbar	5x10 <sup>-4</sup> mbar to 5x10 <sup>-5</sup> mbar	5x10 <sup>-5</sup> mbar
8. Hydraulic Press			
a. Type	H frame	H	H
b. Press capacity forward	20 tons	50 tons	200 tons
c. Press capacity ejection	2 tons	5 tons	--
d. RAM travel forward	--	150 mm	350 mm
e. RAM travel reverse	--	250 mm	--
9. Control Instruments	Auto/ Manual Vacuum Controller, PLC, Temp. Programmer Controller etc.	Auto/ Manual Vacuum Controller, PLC, Temp. Programmer Controller etc.	Auto/ Manual Vacuum Controller, PLC, Temp. Programmer Controller etc.
10. Utilities			
a. Electricity	415 V AC 3 Phase, Peak power 50KVA	415 V AC 3 Phase, Peak power 145KVA	415 V AC 3 Phase, Peak power 150KVA
b. Water	30 Lit/Min. at a pressure of 3 Kg/CM <sup>2</sup>	150 Lit/Min. at a pressure of 3 Kg/CM <sup>2</sup>	40-50 Lit/Min. at a pressure of 3 Kg/CM <sup>2</sup>
c. Pneumatic	Compressed air at a Pr. Of 5-6 Kg/CM <sup>2</sup>	Compressed air at a Pr. Of 5-6 Kg/CM <sup>2</sup>	Compressed air at a Pr. Of 5-6 Kg/CM <sup>2</sup>

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