

OEM VACUUM PRESS

ESPECIFICAÇÕES TÉCNICAS - VERSÃO EM PORTUGUÊS

Prensa a vácuo aquecida e resfriada por fluido térmico
Proposta nº PC2606

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HOT PRESS TECHNICAL INFORMATION:

Platen size:	20" x 26"	508mm x 660mm
Number of daylight openings	4	
Max. Tonnage	80 Tons (U.S.)	711 kN
Min. Pressure on 18"x21" working area	50 psi	3.5 kg/cm ²
Max. Pressure on 18"x21" working area	423 psi	29.7 kg/cm ²
Max. Operating Hydraulic Pressure	160,000 lbs	2,600 psi on cylinders (approx.)
Hydraulic pressure accuracy	Within +/- 1.25% of setpoint pressure	
Size of daylight opening	3.375" +/- 0.04" (4 op'g press)	85 mm +/- 1mm
Number of platens	5	
Platen Thickness	1.5 " approx.	38 mm approx.
Platen Flatness	0.0007"/ft	0.05mm/meter
Platen Parallelism	0.0007"/ft	0.05mm/meter
Platen Surface Finish	63 RMS	1.6µm
Maximum Operating Temperature	525°F	273°C
Heat rise rate on platen	12°F / minute (approx.)	6.6°C / minute
Cool down rate on platen	8°F / minute approx. from 525F to 200F 4°F / minute approx. from 200F to 160F 2°F / minute approx. from 160F to ambient Quoted cooling rates are dependent on supply of sufficient cooling water at recommended temperature and flow rates. OEM will advise on facilities requirements.	
Temperature uniformity across 18"x21" working area at set point under vacuum conditions	Within +/- 3.6°F	Within +/- 2°C
Approximate Final Vacuum	29.62"Hg (at sea level)	< 10mbar (at sea level)
Vacuum draw down time to 29"Hg	5 minutes approx.(at sea level)	5 minutes approx.(at sea level)
Press Closing Speed	30" /min.	762 mm/min.
Pressing Speed	1.0" /min.	25 mm/min.
Operating power supply	To suit	

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INFORMAÇÕES TÉCNICAS DA PRENSA A QUENTE

Prensa a vácuo OEM, aquecida e resfriada por fluido térmico - Proposta PC2606. Placas: 20 x 26 pol. (508 x 660 mm); 4 vãos; força máxima: 80 toneladas americanas (711 kN); pressão mínima/máxima na área de 18 x 21 pol.: 50/423 PSI (3,5/29,7 kg/cm²); pressão hidráulica máxima: 160.000 lb, aproximadamente 2.600 PSI nos cilindros; precisão hidráulica: ±1,25% do valor ajustado. Abertura: 3,375 ±0,04 pol. (85 ±1 mm); 5 placas, espessura aproximada 1,5 pol. (38 mm); planicidade e paralelismo: 0,0007 pol./pé (0,05 mm/m); acabamento: 63 RMS (1,6 µm). Temperatura máxima: 525 °F (273 °C); aquecimento: aproximadamente 12 °F/min (6,6 °C/min). Resfriamento: 8 °F/min de 525 a 200 °F; 4 °F/min de 200 a 160 °F; 2 °F/min de 160 °F ao ambiente, condicionado à água disponível. Uniformidade térmica: ±3,6 °F (±2 °C). Vácuo final: 29,62 pol. Hg, inferior a 10 mbar ao nível do mar; 29 pol. Hg em cerca de 5 min. Fechamento: 30 pol./min (762 mm/min); prensagem: 1 pol./min (25 mm/min). Alimentação: a definir.



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1. Vacuum Hot Press – Quad Piston Design (HHPR)

1.1 MECHANICAL DESIGN

- 1.1.1 Maximum operating capacity of **80 Tons (U.S.)** with a low range operating capacity of **11 Tons (U.S.)**.
- 1.1.2 Precision machined and welded, “**Low Profile**,” steel vacuum chamber design for optimum product visual monitoring. OEM’s “Low-profile” press design provides easy access to the Vacuum Chamber for connection of product thermocouples, and maintenance access.
- 1.1.3 Head and bolster plates are ground flat to **0.0007 inch/foot (0.05mm/meter)** for optimum platen parallelism.
- 1.1.4 **Four (4) daylight openings** of approx. 3.5” each.
- 1.1.5 **EXCLUSIVE “Quad Piston”** design featuring **chromed posts** and fully guided, **high tensile strain rods**, for maximum efficiency and precise lamination.
- 1.1.6 The upper (head) bolster is water cooled to prevent heat transfer to frame structure and hydraulic system resulting in precise, repeatable processing profiles. Our “**Quad Piston**” design is a proven; field tested, and widely accepted design for the lamination of materials **WORLD WIDE**.
- 1.1.7 Vertical translation, aluminum **front vacuum door**.
- 1.1.8 Rear vacuum door is hinged and locked providing **tool free, quick access** for inspection or accessory controls utilization. OEM’s easy open hinged doors do not have any bolts and facilitate easy access to the press chamber.
- 1.1.9 The Hot Press Vacuum Door Seals are located outside the press frame, ensuring longer lifespan due to minimal exposure to heat.

1.2 PLATENS

- 1.2.1 **Five (5)**, single piece construction, steel platens, **20” LR X 26” FB** suitable for *Thermal Fluid heating and Cooling*.
- 1.2.2 Platens are ground flat and parallel to **0.0007 inch/foot (0.05mm/meter)** of span.
- 1.2.3 Platens are design engineered for full flow single fluid entry and exit.
- 1.2.4 Platens are gun drilled with serpentine multipass, high velocity oil channels.
- 1.2.5 Intermediate platens are suspended and fully guided utilizing an OEM engineered adjustable bracket design for precision product daylight openings.
- 1.2.6 Platens are suitable for operation up to **525°F (273°C)**.
- 1.2.7 Platens include a Thermal Fluid inlet and outlet manifold with rigid steel tubing and high temperature corrugated S/S braided hoses to platens for leak-free operation.
- 1.2.8 Heat up rate, as applicable, is based on the selection of a properly sized Thermal Fluid System designed to meet Buyer’s individual processing requirements. See Thermal Fluid Heating Section contained in this proposal for specifications.
- 1.2.9 Upper platen and lower platen are thoroughly insulated from mating bolster to reduce heat transfer and improve temperature distribution.

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1. PRENSA A QUENTE A VÁCUO - PROJETO DE QUATRO PISTÕES

Projeto mecânico: capacidade máxima de 80 ton e faixa baixa de 11 ton. Câmara de aço soldado e usinado, de perfil baixo, para visualização e acesso aos termopares e manutenção. Cabeçote e base retificados a 0,0007 pol./pé (0,05 mm/m). Quatro vãos de aproximadamente 3,5 pol. Projeto exclusivo de quatro pistões, com colunas cromadas e tirantes guiados de alta resistência. Cabeçote superior refrigerado a água para reduzir transferência de calor à estrutura e ao sistema hidráulico. Porta frontal de alumínio com movimento vertical; porta traseira articulada e travada, sem parafusos, para acesso rápido. Vedações externas ao quadro, com menor exposição ao calor. Placas: cinco peças únicas de aço, 20 pol. esquerda-direita x 26 pol. frente-fundo, para aquecimento e resfriamento por fluido térmico; retificadas e paralelas; entrada/saída de fluxo integral; canais serpentinados multipasse perfurados; placas intermediárias suspensas e guiadas por suportes ajustáveis; operação até 525 °F/273 °C; coletores, tubos rígidos e mangueiras corrugadas de aço inox trançado; placas superior e inferior isoladas das bases.



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1.3 HYDRAULIC SYSTEM

- 1.3.1 Self-contained hydraulic unit includes hydraulic reservoir, strainers, filters, oil level gauge, drain port, and all necessary piping for a complete high quality system.
- 1.3.2 System includes an electric motor coupled to a high volume/low pressure pump for rapid press closure and a low volume/high pressure pump for precision pressure control.
- 1.3.3 System includes a heat exchanger to maintain optimum fluid temperature for prolonged use and a **fluid temperature sensor to minimize cooling** water usage.
- 1.3.4 A **10-micron oil return filter** is utilized to prevent system oil contamination and assure pressure **accuracy and repeatability**.
- 1.3.5 Hydraulic pressure control with Microprocessor/ PLC controls is manually set via low pressure and high pressure **relief valves**. **Pressure setting options include low pressure and high pressure**.
- 1.3.6 Clamp force is indicated via two operator accessible pressure gauges.
- 1.3.7 If Option #3 - OEM Advantage Computer Controls system (Allen Bradley PLC) – is selected hydraulic pressure control is via a **precision electronic proportional valve**. A **4-20 mA pressure transducer** in conjunction with computer/PLC controls is used to continuously monitor/record hydraulic pressure. **Pressure setting options include ramped pressure control through the PLC recipe**.

1.4 VACUUM SYSTEM

- 1.4.1 One (1) rotary vane pump design.
- 1.4.2 System cfm displacement and TEFC motor based on time function.
- 1.4.3 One (1) vacuum pump inlet filter.
- 1.4.4 One (1) vacuum gauge (0-30 in. Hg) mounted on press.
- 1.4.5 Vacuum levels are recorded via a **vacuum switch** with Microprocessor/ PLC controls.
- 1.4.6 Performance Levels (at sea level):
 28 in. Hg in approximately 3.5 minutes.
 29 in. Hg in approximately 5 minutes.
- 1.4.7 If Option #3 - OEM Advantage Computer Controls system (Allen Bradley PLC) – is selected a **4-20 mA vacuum transducer** is used to continuously monitor vacuum level. **Vacuum level readings are displayed on the Computer control screen. A vacuum deviation alarms in the computer controls will indicate when vacuum levels are outside the range programmed in the Vacuum Deviation alarm.**

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1.3 SISTEMA HIDRÁULICO E 1.4 SISTEMA DE VÁCUO

Unidade hidráulica autônoma com reservatório, peneiras, filtros, indicador de nível, dreno e tubulação. Motor elétrico aciona bomba de alto volume/baixa pressão para fechamento rápido e bomba de baixo volume/alta pressão para controle preciso. Trocador de calor e sensor mantêm a temperatura e reduzem o consumo de água. Filtro de retorno de 10 µm evita contaminação. O controle por microprocessador/PLC utiliza válvulas manuais de alívio de baixa e alta pressão; dois manômetros indicam a força. Com a Opção 3 - controles OEM Advantage com PLC Allen-Bradley - usa-se válvula proporcional, transdutor 4-20 mA e receitas com rampas. Sistema de vácuo: uma bomba de palhetas rotativas, motor TEFC dimensionado pela função de tempo, filtro de entrada e vacuômetro de 0-30 pol. Hg. Desempenho ao nível do mar: 28 pol. Hg em aproximadamente 3,5 min e 29 pol. Hg em aproximadamente 5 min. Com a Opção 3, transdutor 4-20 mA monitora continuamente, exibe o nível na tela e gera alarme de desvio.



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Press Controls:

The controls system options for this press include OEM's **Panelview/PLC controls system** that allows you to program the Hot Press based on four (4) segment recipes which are controlled on time. These controls are panel mounted and come pre-wired to the press system resulting in a quick and easy installation. Up to twenty (20) recipes can be stored for easy recall if you want to run the same cycle again. This system includes several alarms which can be displayed on the interface screen.



Panelview/PLC controls

1.5 Electrical Control System with Panelview/PLC Controls (manual pressure and temperature setpoint control)

- 1.5.1 One (1) NEMA electrical enclosure mounted on the side of the Hot Press will house electrical control items including disconnect switch, fuses, motor starters, relays, transformer, power distribution blocks, PLC, and related I/O modules.
- 1.5.2 The operator control panel houses panel mounted operator controls including an interface terminal for recipe programming and push button controls.
- 1.5.3 Press control functions via **PLC** (Programmable Logic Controller) processor and respective **I/O** modules.
- 1.5.4 System is configured to operate on 380/3/50 service with all operating controls to operate on 120 volt service.
- 1.5.5 **PLC** interface via panel mounted operator interface terminal with numeric keypad, function keys and push buttons provide complete process control and data monitoring capability.

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CONTROLES DA PRENSA E SISTEMA ELÉTRICO

O sistema PanelView/PLC permite programar a prensa em receitas de quatro segmentos controlados por tempo. Os controles vêm montados e pré-cabeados; armazenam até 20 receitas e exibem alarmes. Um gabinete NEMA lateral abriga seccionadora, fusíveis, partidas de motores, relés, transformador, blocos de distribuição, PLC e módulos de E/S. O painel do operador contém terminal para receitas e botões. O sistema opera em alimentação 380 V, trifásica, 50 Hz, com controles em 120 V. O terminal, com teclado numérico, teclas de função e botões, permite controle completo do processo e monitoramento de dados.



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- 1.5.6 Allen Bradley PV300 interface panel utilizes high contrast LCD technology, tactile feedback keypad data entry, RS 232/RS485 communications port which allows communications to PLC or off-line programming from a PC.
- 1.5.7 Interface module allows multi application screens and configuration data. Twenty (20) recipe storage capability is included for kiss, cure and cooling time data entry.
- 1.5.8 **PLC** (previously programmed) will time cure cycles and provide all operational valve sequencing & signals.
- 1.5.9 Manually programmed Temperature controller with ramp function controls the rate of heat rise on platen.
- 1.5.10 Alarm screen displays active and historical alarms.
- 1.5.11 Password protection is provided for recipe editing and downloading functions.
- 1.5.12 *Press to have three (3) "read only" Product TC connections inside press chamber. The Product TC readings can be displayed on an Omega 3 display unit.*

1.6 Thermal Fluid (electrically heated) Heater with Cooling System (Water tower not included)

1. **One (1) electric-fired Thermal Fluid Heating System** sized to heat one (1) Hot Press. The heater unit shall be self-contained and fully independent.
2. The heater system shall have an integrated Temperature Control Unit to maintain temperature heat-up rate, cool-down rate and temperature profile.
3. Average rate of heat rise on platen: 12°F/min (6.6°C)
Average rate of cool down on platen:
8°F / minute approx. from 525F to 200F
4°F / minute approx. from 200F to 160F
2°F / minute approx. from 160F to ambient
Cooling rate is dependent on cooling tower design.
4. Maximum operating temperature: 525° F (273°C).
5. Calculations are based on the following maximum book weights:
200 lbs (90 Kg) for books up to 24"x30"
6. Heavy duty electric heater unit featuring:
 - Circulation pump and motor.
 - Low and high pressure switches.
 - Relief valves.
 - Expansion tank.
 - Steel skid mounted, no hold down bolts.

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CONTROLES - CONTINUAÇÃO / AQUECIMENTO E RESFRIAMENTO

O painel Allen-Bradley PV300 possui LCD de alto contraste, teclado tátil e portas RS-232/RS-485 para comunicação com o PLC ou programação off-line. O módulo admite várias telas e 20 receitas com tempos de contato, cura e resfriamento. O PLC sequencia ciclos, válvulas e sinais. Controlador de temperatura programável manualmente, com rampa, controla a taxa de aquecimento. Há tela de alarmes ativos/históricos, proteção por senha e três conexões internas de termopar do produto, somente leitura, exibidas em unidade Omega 3. Sistema de fluido térmico: um aquecedor elétrico autônomo para uma prensa, com unidade integrada de controle de temperatura. Aquecimento médio das placas: 12 °F/min (6,6 °C/min). Resfriamento: 8 °F/min de 525 a 200 °F; 4 °F/min de 200 a 160 °F; 2 °F/min de 160 °F ao ambiente, conforme a torre de resfriamento. Máximo: 525 °F/273 °C. Cálculos baseados em livros de até 200 lb/90 kg e 24 x 30 pol. Unidade pesada com bomba de circulação e motor, pressostatos de baixa/alta, válvulas de alívio, tanque de expansão e base de aço sem parafusos de fixação. Torre de água não incluída.