



VACU²

**Multi-Stage Vacuum Process.
Innovative Solutions for Reliable and Efficient Die Casting.**

PFEIFFER  **VACUUM**



Multi-Stage Vacuum Process. Innovative Solutions for Reliable and Efficient Die Casting.

Two stages – One system: Exact. Fast. Efficient.

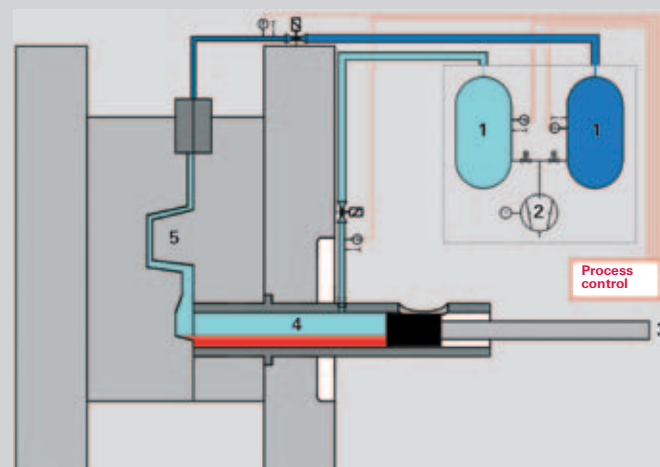
The purpose of vacuum in a die casting system is to evacuate a given volume of air from the mold cavity and the shot sleeve within the shortest possible period of time. This avoids air inclusions in the castings.

In our new Vacu² multi-stage vacuum process, the shot sleeve and mold cavity are evacuated in two stages. During the first stage, the air is extracted directly from the shot sleeve via a wide cross-section line. This enables the desired pressure to be quickly achieved in the shot sleeve and mold.

In the second evacuation stage, the air is extracted directly from the mold. Since the desired pressure has already been achieved in the first stage, the second stage only serves to maintain the pressure by pumping down air that leaks into the mold.

Low costs through precise cost control

The control system processes pressure measurements that are taken in four different locations at different points in time during the casting process into process-relevant data. This allows precise information about the current status of the system. If the limits, that can be defined by the user, be not reached or exceeded, the system responds with warning signals. This avoids unnecessary rejects and significantly reduces costs in the die cast processes.



- 1 Buffer recipients
- 2 Vacuum pumps
- 3 Casting piston
- 4 Shot sleeve
- 5 Mold cavity



Customer benefits

- Better vacuum leads to optimum quality
- Reliable process monitoring reduces the rejection rate
- Faster process optimization and savings in the mold design and the vent valves reduce your costs

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Two versions for your applications

The Pfeiffer Vacuum multi-stage vacuum process is available in Vacu² and Vacu² eco versions:

The Vacu² version is designed for applications with a clamping force of more than 750 metric tons. It ensures that the vacuum needed is obtained quickly and reliably and is of a high quality.

Vacu² eco is suitable for die casting units with a clamping force of up to 750 metric tons. It has a highly efficient suction volume and uses very little energy. It achieves considerable savings in operation.

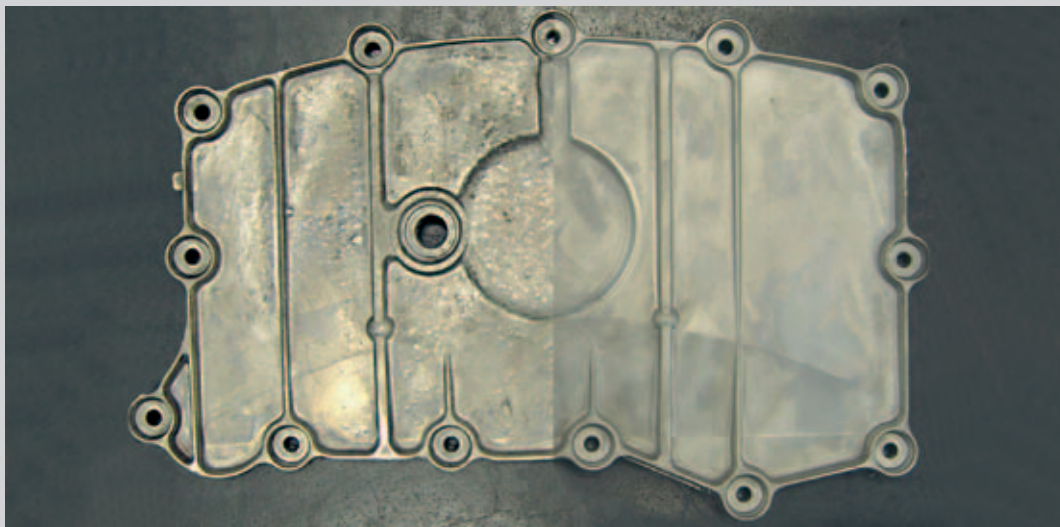
Both systems incorporate reliable process monitoring that reduces the rejection rate and thus optimizes production costs.



Comparison of vacuum processes

	Conventional vacuum process	Pfeiffer Vacuum – Vacu ² / Vacu ² eco
Desired pressure	Pressure (< 50 mbar) in the mold cavity cannot be achieved during the short period available	Pressure in the mold cavity is reliably achieved and maintained › Avoiding air inclusions
Process control	Ineffective process control: Impossible to determine the pressure in the mold cavity	Effective process control: Precise determination of the pressure in the mold cavity › Reproducible processes
Vent valves	Employment of complicated, failure-prone, expensive vent valves to extract air from the mold cavity for as long as possible	Employment of simple and cost-effective vent valves at the mold, as the desired pressure has already been achieved in the first evacuation stage › Trouble-free operation with low maintenance costs
Reproducibility	Poor reproducibility: The major influence of leakage and conductivity changes in valves and vacuum lines leads to instability of the die casting process	High reproducibility: The influence of leakage and conductivity changes is minimized › Avoiding rejects

Visual comparison following glow test at 500° C



Multi-Stage Vacuum Process. Innovative Solutions for Reliable and Efficient Die Casting.

Advantages at a glance

- For die casting units with a clamping force > 750 metric tons
- Recipient concept used ideally matches the requirements of large die casting units
- Quickly and reliably reaches and maintains the desired pressure in the mold cavity during the first stage
- Prevents air inclusions
- Trouble-free, cost-effective operation due to low maintenance costs
- Reduces rejects through reliable process control and high reproducibility

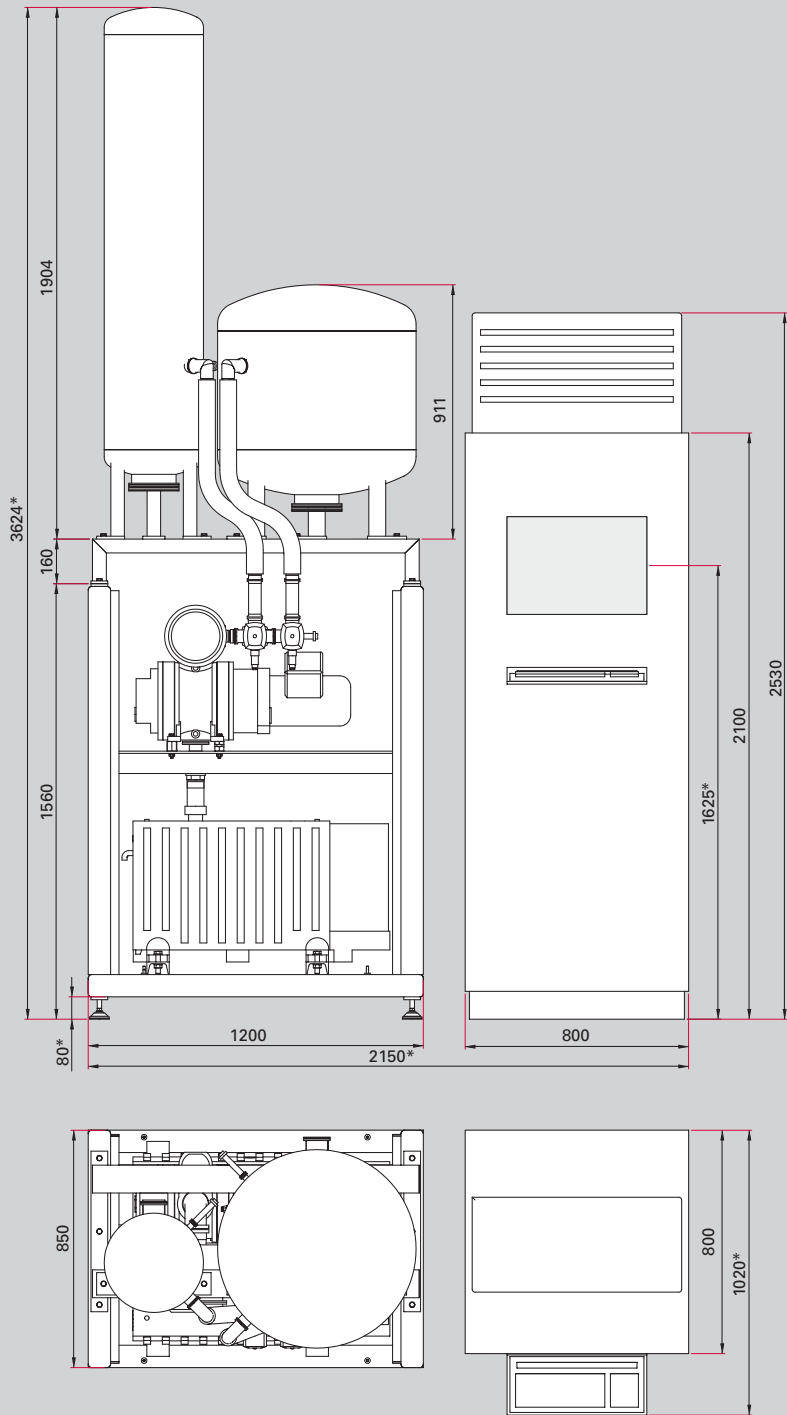


Technical data

	Vacu ²
Pumping speed	200 m ³ /h
Achievable ultimate pressure in buffer recipient	5 mbar
Footprint	
Dimensions (W x D x H)	1,300 x 930 x 3,716 ¹⁾ mm
Weight	1,000 kg
Electrical connection data	
Rating	7.2 kVA
Frequency	50 Hz/60 Hz
Voltage	3 x 400 V/3 x 208 V
Control voltage	24 VDC
Pneumatic connection data	
Pressure	6–8 bar
Service unit connection	G 1/4" Mini
Compressed air connection	Hose, inside dia. 10 mm
Extraction/venting connection data	
Vacuum exhaust P1, P6	DN 50
Venting connection	G 1/2"
Ambient temperature	12–35 °C
Relative humidity	≤ 60 %
Air pressure	86–106 kPa
Noise emission	
Operational noise level	< 85 db(A)

¹⁾ variable, depending upon recipient

Dimensions (in mm)



VACU² ECO

Multi-Stage Vacuum Process. Innovative Solutions for Reliable and Efficient Die Casting.

Advantages at a glance

- For die casting units with a clamping force < 750 metric tons
- Highly cost-effective with the great efficiency it offers in terms of suction volume and low energy consumption
- Recipient concept used ideally matches small chamber and mold volumes
- High-resolution 15" Siemens touchscreen display, fully integrated in a compact control cabinet
- Optimized duct volume for evacuating small-volume molds
- Maintenance-friendly system design and high production control through proven and reliable technology
- Optimal cost-performance ratio

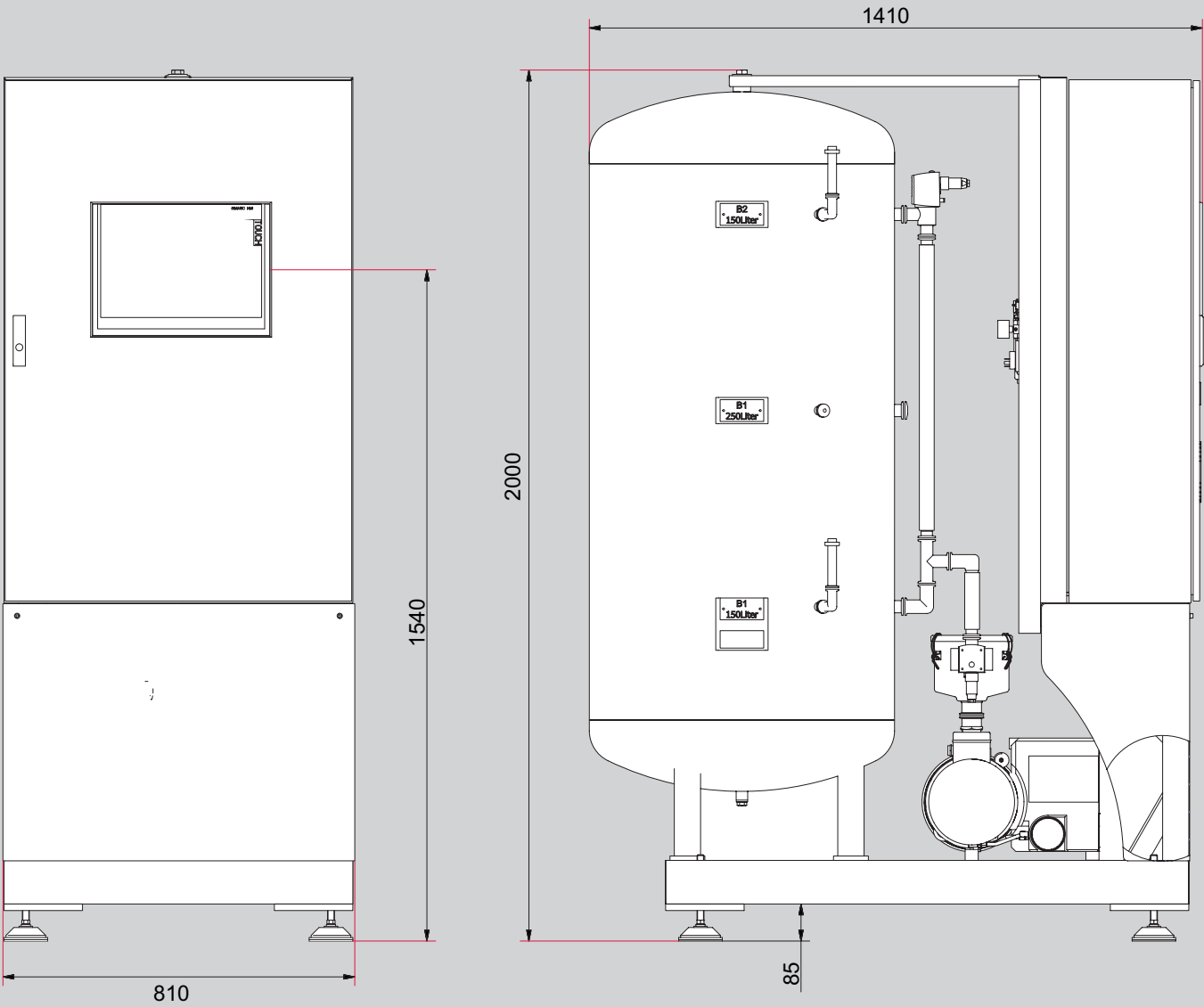


Technical data

	Vacu ² Eco
Pumping speed	100 m ³ /h
Achievable ultimate pressure in buffer recipient	5 mbar
Footprint	
Dimensions (W x D x H)	810 x 1,410 x 2,000 mm
Weight	630 kg
Electrical connection data	
Rating	4.5 kVA
Frequency	50 Hz/60 Hz
Voltage	3 x 400 V/3 x 460 V
Control voltage	24 VDC
Pneumatic connection data	
Pressure	6–8 bar
Service unit connection	G 1/4" Mini
Compressed air connection	Hose, inside dia. 10 mm
Extraction/venting connection data	
Vacuum exhaust P1, P6	DN 40
Venting connection	G 1/2"
Ambient temperature	15–35 °C
Relative humidity	≤ 60 %
Air pressure	86–106 kPa
Noise emission	
Operational noise level	< 75 db(A)

¹⁾ variable, depending upon recipient

Dimensions (in mm)



VACUUM SOLUTIONS FROM A SINGLE SOURCE

Pfeiffer Vacuum stands for innovative and custom vacuum solutions worldwide, technological perfection, competent advice and reliable service.

COMPLETE RANGE OF PRODUCTS

From a single component to complex systems:

We are the only supplier of vacuum technology that provides a complete product portfolio.

COMPETENCE IN THEORY AND PRACTICE

Benefit from our know-how and our portfolio of training opportunities!

We support you with your plant layout and provide first-class on-site service worldwide.

Are you looking for a
perfect vacuum solution?
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