



# Classic Vacuum System Solutions

**Flexible Technology for Production,  
Research and Development**

**For Europe only!**

# Classic Vacuum System Solutions

## Flexible Technology for Research, Development and Production

### Everything from one source

Based on long-term experience and technical knowledge Pfeiffer Vacuum provides an extensive line of high vacuum systems for various areas of application, such as:

- Optics
- Microelectronics
- Display technology
- Photovoltaic engineering
- Medical engineering

The systems can be equipped for the following processes:

- High vacuum evaporation processes
- Sputtering processes
- Plasma processes (pre-treatment)

### Technical features

- Various sizes available depending on application and throughput
- Built-in flexibility from a wide range of standard process accessories
- Durable design for industrial use
- Low operating costs
- Clean-room compatibility
- Easy to maintain
- Upgradeability via add-on accessories

### Process integration

Besides the system hardware Pfeiffer Vacuum also offers support regarding the integration of existing or new processes into the system.

Two Classic 580  
Vacuum Systems



Front



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## General technical data for all systems

### Electrical supply

Mains voltage	V	3 x 400
Frequency	Hz	50/60
Total power consumption		depending on process conditions

### Cooling water

Total consumption		depending on process conditions
Pump set consumption (approx.)	l/h	100
Inflow temperature	°C	25
Pressure	bar	4 – 6
Water-connection (in- and outlet)	Nipple	1/2"

### Hot water

Total consumption		depending on process conditions
Inflow temperature (max.)	°C	70
Pressure	bar	4 – 6
Water-connection (in- and outlet)	Nipple	3/8"

## Vacuum Technology

- All vacuum chambers made of stainless steel
- Chamber volumes from 35 to 1300 l  
(special chambers on request)
- Various pumping stations available  
(Turbo-, cryo- or oil diffusion pumps)
- Vacuum chambers coolable and heatable
- Final pressures  $< 5 \cdot 10^{-7}$  mbar
- Integral leak rate  $< 1 \cdot 10^{-5}$  mbar l/s



## Classic 250

Cost effective lab-system for research and development



## Classic 500/500 SP

The most popular system for research, development and batch production



### Classic 250

Vacuum chamber <sup>1</sup>		
Useful volume (approx.)	l	35
Internal diameter	mm	290
Internal height	mm	470
Door opening, W x H	mm	290 x 470
Integral leak rate	mbar l/s	$< 1 \cdot 10^{-5}$
Final pressure	mbar	$< 1 \cdot 10^{-6}$

High vacuum pumping station <sup>2</sup> (Standard)		
Turbopump HiPace™ 300	l/s	210
Rotary vane pump DUO 5	m <sup>3</sup> /h	5
Vacuum measurement PKR 251	FullRange™-Gauge	

Dimensions		
Floor space (approx.)	m <sup>2</sup>	1
L x W x H (approx.)	m	1.2 x 0.8 x 1.7
Weight of the basic system (approx.)	kg	300
Ambient temperature (max.)	°C	40

<sup>1</sup> All vacuum chambers made of stainless steel

<sup>2</sup> Other pump stations available

### Classic 500 / Classic 500 SP

Vacuum chamber <sup>1</sup>		Classic 500	Classic 500 SP
Useful volume (approx.)	l	150	120
Internal diameter	mm	500	600
Internal height	mm	575	350
Door opening, W x H	mm	500 x 575	500 x 350
Integral leak rate	mbar l/s	$< 1 \cdot 10^{-5}$	$< 1 \cdot 10^{-5}$
Final pressure	mbar	$< 5 \cdot 10^{-7}$	$< 5 \cdot 10^{-7}$

High vacuum pumping station <sup>2</sup> (Standard)		
Turbopump HiPace™ 700	l/s	500
Rotary vane pump DUO 20	m <sup>3</sup> /h	20
Vacuum measurement PKR 251	FullRange™-Gauge	

Dimensions		
Floor space (approx.)	m <sup>2</sup>	1.5
L x W x H (approx.)	m	1.4 x 1.1 x 1.9
Weight of the basic system (approx.)	kg	550/600
Ambient temperature (max.)	°C	40

<sup>1</sup> All vacuum chambers made of stainless steel

<sup>2</sup> Other pump stations available

## Evaporation

Pfeiffer Vacuum offers high vacuum systems for nearly every application in research and development as well as production via flexible combinations of different evaporators and a rich choice of standard process accessories.

Examples for application:

- Anti-reflective process
- Scratch resistant process
- Laser mirrors
- Contact metalization
- Deposition of alloys (Co-evaporation)



## Classic 500 L

The dedicated system for lift-off applications



## Classic 570/570 SP

The compact system for industrial use



### Classic 500 L

Vacuum chamber <sup>1</sup>		
Useful volume (approx.)	l	225
Internal diameter	mm	500
Internal height	mm	900
Door opening, W x H	mm	500 x 900
Integral leak rate	mbar l /s	< 1 · 10 <sup>-5</sup>
Final pressure	mbar	< 5 · 10 <sup>-7</sup>

High vacuum pumping station <sup>2</sup> (Standard)		
Turbopump HiPace™ 1500	l/s	1,200
Rotary vane pump DUO 20	m <sup>3</sup> /h	20
Vacuum measurement PKR 251	FullRange™-Gauge	

Dimensions		
Floor space (approx.)	m <sup>2</sup>	1.5
L x W x H (approx.)	m	1.4 x 1.1 x 1.9
Weight of the basic system (approx.)	kg	600
Ambient temperature (max.)	°C	40

<sup>1</sup> All vacuum chambers made of stainless steel

<sup>2</sup> Other pump stations available

### Classic 570 / Classic 570 SP

Vacuum chamber <sup>1</sup>		Classic 570	Classic 570 SP
Useful volume (approx.)	l	310	200
Internal diameter	mm	740	740
Internal height	mm	680	440
Door opening, W x H	mm	740 x 680	740 x 440
Integral leak rate	mbar l /s	< 1 · 10 <sup>-5</sup>	< 1 · 10 <sup>-5</sup>
Final pressure	mbar	< 5 · 10 <sup>-7</sup>	< 5 · 10 <sup>-7</sup>

High vacuum pumping station <sup>2</sup> (Standard)		Classic 570	Classic 570 SP
Turbopump HiPace™ 2300	l/s	1,900	
Rotary vane pump DUO 35	m <sup>3</sup> /h	32	
Vacuum measurement PKR 251	FullRange™-Gauge		

Dimensions		
Floor space (approx.)	m <sup>2</sup>	2.5
L x W x H (approx.)	m	1.6 x 1.6 x 1.9
Weight of the basic system (approx.)	kg	900/950
Ambient temperature (max.)	°C	40

<sup>1</sup> All vacuum chambers made of stainless steel

<sup>2</sup> Other pump stations available

## Sputtering

In addition to high vacuum evaporation systems Pfeiffer Vacuum also delivers single chamber sputtering systems with or without load-lock. These systems are based on the vacuum chambers of the Classic 250 to 570. They are available with the standard dimensions as well as suited to the sputtering process (SP versions).

Examples for layers:

- Metal layers (Au, Cu, Al, Cr, ...)
- Dielectric layers (SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, ...)
- Transparent, conductive layers (ITO)
- Magnetic layers
- Deposition of alloys (co-sputtering)



## Classic 570 L

The versatile manufacturing system for highest industrial requirements



## Classic 590

Manufacturing system for highest industrial requirements and high throughput



### Classic 570 L

Vacuum chamber <sup>1</sup>		
Useful volume (approx.)	l	410
Internal diameter	mm	740
Internal height	mm	915
Door opening, W x H	mm	740 x 915
Integral leak rate	mbar l/s	$< 1 \cdot 10^{-5}$
Final pressure	mbar	$< 5 \cdot 10^{-7}$

High vacuum pumping station <sup>2</sup> (Standard)		
Turbopump HiPace™ 2300	l/s	1,900
Rotary vane pump DUO 65	m <sup>3</sup> /h	62
Vacuum measurement PKR 251	FullRange™-Gauge	

Dimensions		
Floor space (approx.)	m <sup>2</sup>	2.5
L x W x H (approx.)	m	1.6 x 1.6 x 2.1
Weight of the basic system (approx.)	kg	1,200
Ambient temperature (max.)	°C	40

<sup>1</sup> All vacuum chambers made of stainless steel

<sup>2</sup> Other pump stations available

### Classic 590

Vacuum chamber <sup>1</sup>		
Useful volume (approx.)	l	820
Internal diameter	mm	900
Internal height	mm	1,100
Door opening, W x H	mm	900 x 1,100
Integral leak rate	mbar l/s	$< 1 \cdot 10^{-5}$
Final pressure	mbar	$< 5 \cdot 10^{-7}$

High vacuum pumping station <sup>2</sup> (Standard)		
Turbopumps 2 x HiPace™ 2300	l/s	3,800
Rotary vane pump DUO 120	m <sup>3</sup> /h	120
Vacuum measurement PKR 251	FullRange™-Gauge	

Dimensions		
Floor space (approx.)	m <sup>2</sup>	4.0
L x W x H (approx.)	m	1.8 x 2.2 x 2.1
Weight of the basic system (approx.)	kg	2,000
Ambient temperature (max.)	°C	40

<sup>1</sup> All vacuum chambers made of stainless steel

<sup>2</sup> Other pump stations available

## Sources

- Resistance evaporators (2 – 6 kVA)
- Electron beam evaporators (3 – 15 kW) with single- or multi-pocket crucible
- Ion beam sources (IAD)
- RF and DC sputter cathodes (0.3 – 10 kW)
- Glow discharge units





### Control system

- PLC and industrial PC with visualisation under Windows
- Fully automatic process control
- Simple management of recipes
- Detailed data logging (alarm and process archive + trending)
- Integrated manual



**Leading. Dependable.  
Customer Friendly.**

Pfeiffer Vacuum stands for innovative and custom vacuum solutions worldwide, for German engineering art, competent advice and reliable service.

Ever since the invention of the turbopump, we've been setting standards in our industry and this claim to leadership will continue to drive us in the future.

**Are you looking for a  
perfect vacuum solution?  
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