

# HIPACE H

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Ideal for UHV applications.

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## **Highest level of compression**

With its new HiPace 300 H and HiPace 700 H, Pfeiffer Vacuum presents turbopumps with the highest level of compression available. The pumps have a compression ratio of  $\geq 10^7$  for hydrogen, making it ideal for generating high and ultra-high vacuum. The high compression ratio results in a low residual gas background in the chamber, which is desirable for mass spectrometry applications, for example.

## **High-performance technology**

Thanks to the sophisticated design of the rotor, the HiPace H turbopumps have an extraordinarily high max. fore-vacuum pressure of 30 hPa. This allows the pump to achieve ultra-high vacuum even when operated with a high fore-vacuum pressure, for example in combination with diaphragm pumps. The integrated "Intermittent mode" function ensures that a connected backing pump is switched on by the HiPace H only when the fore-vacuum pressure is no longer needed. This reduces the energy consumption of the overall vacuum system by more than 90 %.

## **Highest reliability**

Based on a so-called hybrid bearing, a combination of ceramic ball bearings on the fore-vacuum side and permanently magnetic radial bearings on the high vacuum side, our HiPace turbopumps have a particularly robust bearing design. Therefore the pumps have a long life cycle with a preventive maintenance interval of greater 4 years.



HV- and UHV applications



Accelerators



Mass spectrometry



#### Customer benefits

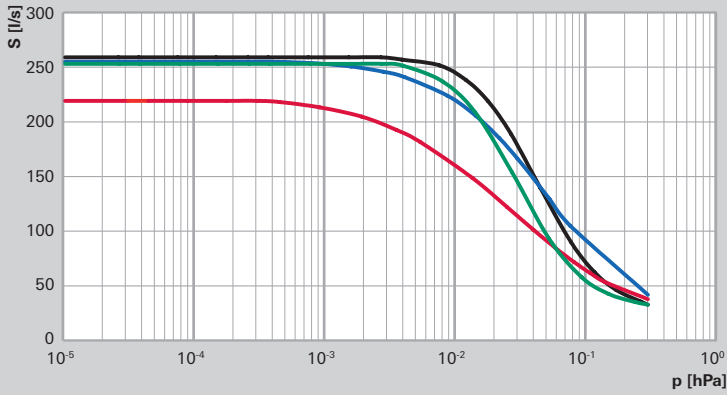
- The highest level of compression, especially for light gases
- Ideal for HV and UHV applications
- Best UHV pressures even in combination with diaphragm pumps
- Intermittent mode offers energy savings of more than 90 % without any reduction in performance

# HIPACE H

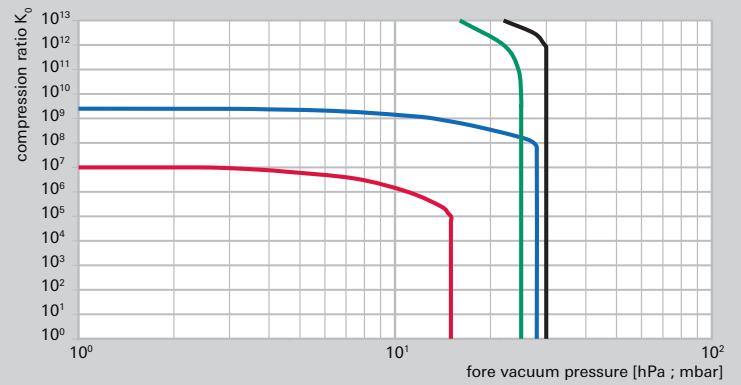
## Pumping speed, compression ratio and dimensions

### HiPace 300 H

Pumping speed

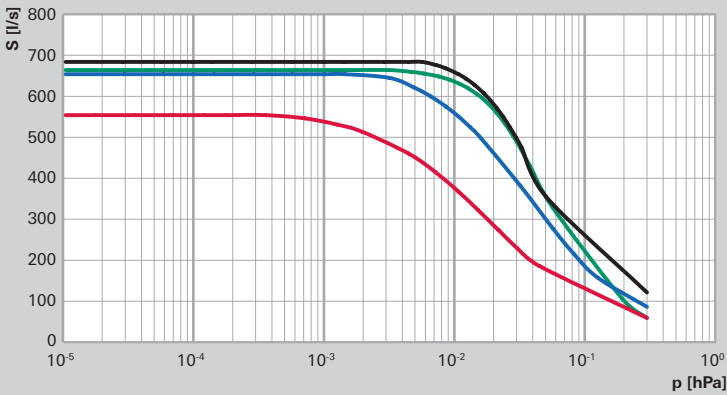


Compression ratio

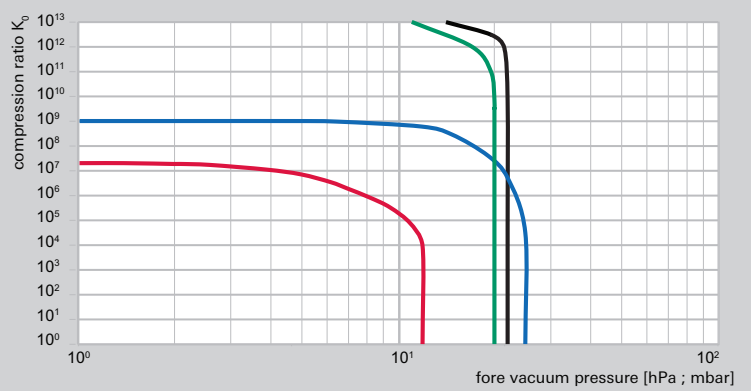


### HiPace 700 H

Pumping speed



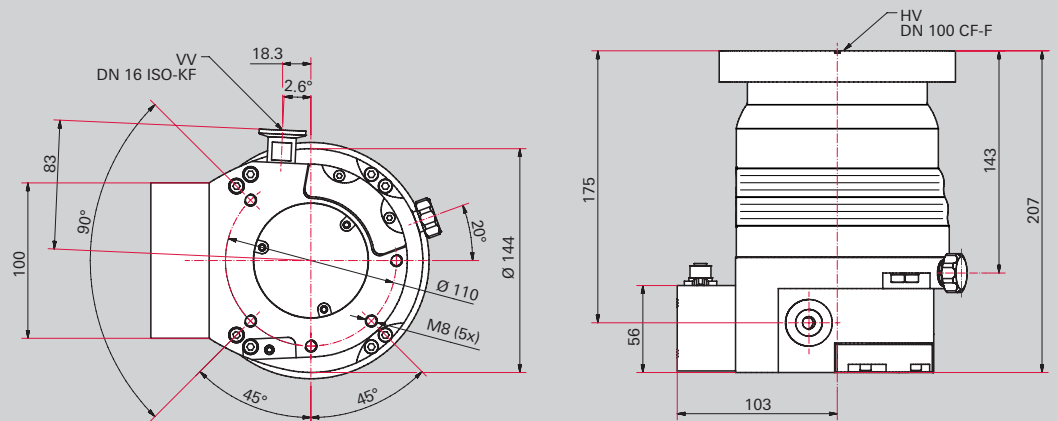
Compression ratio



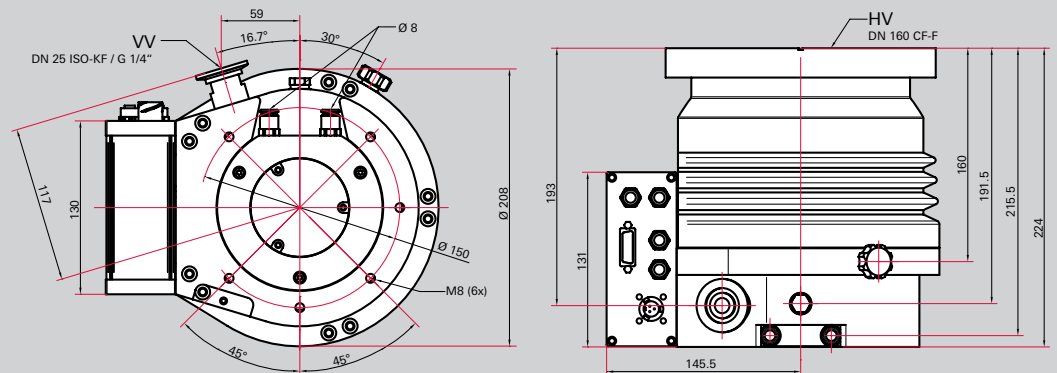
- N<sub>2</sub> ———
- He ———
- H<sub>2</sub> ———
- Ar ———

## Dimensions

### HiPace 300 H, DN 100 CF-F



### HiPace 700 H, DN 100 CF-F



Dimensions in mm

# HIPACE H

## Technical data and order numbers

### Technical data

	HiPace 300 H		
	DN 100 ISO-K	DN 100 CF-F	DN 100 ISO-F
Flange (in)	DN 100 ISO-K	DN 100 CF-F	DN 100 ISO-F
Flange (out)	DN 16 ISO-KF / G 1/4"		
Venting connection	G 1/8"		
Pumping speed for N <sub>2</sub>	260 l/s		
Pumping speed for H <sub>2</sub>	220 l/s		
Pumping speed for He	255 l/s		
Pumping speed for Ar	255 l/s		
Rotation speed ±2%	60,000 min <sup>-1</sup>		
Run-up time	3.5 min.		
Gas throughput at full rotational speed for N <sub>2</sub>	1.5 hPa l/s		
Gas throughput at full rotational speed for H <sub>2</sub>	10 hPa l/s		
Gas throughput at full rotational speed for He	3.5 hPa l/s		
Gas throughput at full rotational speed for Ar	0.5 hPa l/s		
Compression ratio for N <sub>2</sub>	> 1 · 10 <sup>13</sup>		
Compression ratio for H <sub>2</sub>	1 · 10 <sup>7</sup>		
Compression ratio for He	2.5 · 10 <sup>9</sup>		
Compression ratio for Ar	> 1 · 10 <sup>13</sup>		
Fore-vacuum max for N <sub>2</sub>	30 hPa		
Fore-vacuum max for H <sub>2</sub>	15 hPa		
Fore-vacuum max for He	28 hPa		
Fore-vacuum max for Ar	25 hPa		
Ultimate pressure according to PNEUROP	< 1 · 10 <sup>-7</sup> hPa	< 1 · 10 <sup>-10</sup> hPa	< 1 · 10 <sup>-7</sup> hPa
Weight	5.8 – 6.2 kg	7.8 – 8.2 kg	6.1 – 6.5 kg
Cooling method, standard	Air		
Cooling method, optional	Water		
Cooling water consumption	50 l/h		
Cooling water temperature	15 – 35 °C		
Interfaces	RS-485, Remote		
Protection category	IP54		
Permissible magnetic field max.	5.5 mT		
Sound pressure level	≤ 50 dB (A)		
Mounting orientation	in any orientation		
Operating voltage	24 V DC		

### Order numbers

	HiPace 300 H	DN 100 ISO-K	DN 100 CF-F	DN 100 ISO-F
with TC 110		PM P05 540	PM P05 541	PM P05 542
with TC 400				
for TCP 350		PM P05 543	PM P05 544	PM P05 545

HiPace 700 H		
DN 160 ISO-K	DN 160 CF-F	DN 160 ISO-F
DN 160 ISO-K	DN 160 CF-F	DN 160 ISO-F
	DN 16 ISO-KF / G 1/4"	
	G 1/8"	
	685 l/s	
	555 l/s	
	655 l/s	
	665 l/s	
	49,200 min <sup>-1</sup>	
	2 min.	
	3.5 hPa l/s	
	14 hPa l/s	
	18 hPa l/s	
	2 hPa l/s	
	$> 1 \cdot 10^{13}$	
	$2 \cdot 10^7$	
	$1 \cdot 10^9$	
	$> 1 \cdot 10^{13}$	
	22 hPa	
	12 hPa	
	25 hPa	
	20 hPa	
$< 1 \cdot 10^{-7}$ hPa	$< 1 \cdot 10^{-10}$ hPa	$< 1 \cdot 10^{-7}$ hPa
10.9 – 11.8 kg	16.8 – 17.7 kg	11.5 – 12.4 kg
	Water	
	Air	
	100 l/h	
	15 – 35 °C	
	RS-485, Remote	
	IP54	
	6 mT	
	$\leq 50$ dB (A)	
	in any orientation	
	48 V DC	
DN 160 ISO-K	DN 160 CF-F	DN 160 ISO-F
PM P05 750	PM P05 751	PM P05 742
PM P05 743	PM P05 744	PM P05 745

## **VACUUM SOLUTIONS FROM A SINGLE SOURCE**

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