



# HiPace<sup>®</sup> 350 / HiPace<sup>®</sup> 450

The ideal turbopumps for light gases

**PFEIFFER**  **VACUUM**

# HiPace® 350 / HiPace® 450

## The ideal turbopumps for light gases

### High performance

HiPace 350 and 450 deliver high performance despite their low weight and space requirement. Based on a hybrid bearing, a combination of a ceramic ball bearing on the fore-vacuum side and permanently magnetic radial bearings on the high vacuum side, these HiPace turbopumps have a particularly robust bearing design which provides maximum reliability.

### Cost-effective

The innovative design of the rotor in this turbopump results in an exceptional pumping speed for light gases, comprehensive compatibility with backing pumps and a high gas throughput as well as excellent compression of light gases. It also ensures a high degree of cost-effectiveness and flexibility since the pumps can be installed in any orientation .

### Multiple interfaces

The integrated HiPace electronic drive unit provides a wide range of communication interfaces, including ProfiNet and EtherCat, without increasing the size. Remote and sensor functionalities enable pump data to be analyzed for optimum process monitoring during operation. Their quiet operation and improved gas throughput set new standards in the vacuum industry. The pumps are certified to Semi-S2, UL, CSA and Nema 12.

### Optimized bearing design

Bearing maintenance and replacement can be carried out on-site at the customer's premises. The pumps run maintenance-free for up to 5 years.

### Customer benefits

- Compact and powerful
- Pumping speeds to 380 l/s
- Exceptional pumping speed for light gases
- Maximum reliability
- Cost-effective and flexible
- Quiet operation
- Semi-S2, UL, CSA and IP54/Nema12



## Applications

- Analytics
- Vacuum process and semiconductor technology
- Coating
- Research & development
- Industry
- Application examples:
  - Mass spectrometry
  - Electron microscopy
  - Measurement technology
  - Particle accelerators
  - Plasma physics

# HiPace® 350 / HiPace® 450

## Technical data

### Technical data

		HiPace® 350 with TC 110	HiPace® 350 with TC 120	HiPace® 350 with TC 400	HiPace® 350 with TC 120	HiPace® 350 with TC 400		
Connection flange	Flange (in)	DN 100 ISO-K			DN 100 CF-F			
	Flange (out)	DN 16 ISO-KF / G 3/8"						
Venting connection		G 1/8"						
Pumping speed for	N <sub>2</sub>	300 l/s						
	H <sub>2</sub>	300 l/s						
	He	350 l/s						
	Ar	270 l/s						
Speed ±2%		66,000 min <sup>-1</sup>						
Gas throughput at full rotational speed for	N <sub>2</sub>	2 mbar l/s						
	H <sub>2</sub>	11 mbar l/s						
	He	7 mbar l/s						
	Ar	0.7 mbar l/s						
Compression ratio for	N <sub>2</sub>	> 1 · 10 <sup>11</sup>						
	H <sub>2</sub>	1 · 10 <sup>7</sup>						
	He	> 1 · 10 <sup>8</sup>						
	Ar	> 1 · 10 <sup>11</sup>						
Fore-vacuum max. for	N <sub>2</sub>	10 mbar						
	H <sub>2</sub>	6 mbar						
	He	10 mbar						
	Ar	10 mbar						
Final pressure	≤ 1 · 10 <sup>-7</sup> hPa				≤ 5 · 10 <sup>-10</sup> hPa			
Weight	7.2 kg	7.2 kg	7.8 kg	7.8 kg	10 kg	10.6 kg	10.6 kg	
Cooling type	standard	convection						
	optional	Air/water						
Cooling water	flow rate	100 l/h						
	temperature	15 – 25 °C						
Interfaces		RS-485, Remote						
Protection category		IP54						
Admissible radial magnetic field max.	radial	4.5 mT						
	axial	20 mT						
Sound pressure level		≤50 dB(A)						
Mounting orientation		in any orientation						
Operating voltage		24 V DC (±5 %)	48 V DC (±5 %)	24 V DC (±5 %)	48 V DC (±5 %)	48 V DC (±5 %)	24 V DC (±5 %)	48 V DC (±5 %)
Run-up time		5.3 min	4 min	4 min	2 min	4 min	4 min	2 min

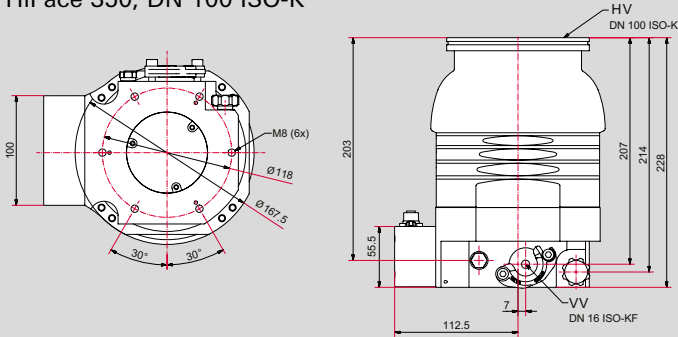
HiPace® 450 with TC 110		HiPace® 450 with TC 120		HiPace® 450 with TC 400		HiPace® 450 with TC 120		HiPace® 450 with TC 400	
DN 160 ISO-K				DN 160 CF-F					
DN 16 ISO-KF / G 3/8"									
G 1/8"									
380 l/s									
330 l/s									
380 l/s									
350 l/s									
66,000 min <sup>-1</sup>									
2 mbar l/s									
11 mbar l/s									
7 mbar l/s									
0.7 mbar l/s									
> 1 · 10 <sup>11</sup>									
1 · 10 <sup>7</sup>									
> 1 · 10 <sup>8</sup>									
> 1 · 10 <sup>11</sup>									
10 mbar									
6 mbar									
10 mbar									
10 mbar									
≤ 1 · 10 <sup>-7</sup> hPa				≤ 5 · 10 <sup>-10</sup> hPa					
7 kg	7 kg	7.6 kg	7.6 kg	11.5 kg	12.1 kg	12.1 kg			
convection									
Air/water									
100 l/h									
15 – 25 °C									
RS-485, Remote									
IP54									
4.5 mT									
20 mT									
≤ 50 dB(A)									
in any orientation									
24 V DC (±5 %)	48 V DC (±5 %)	24 V DC (±5 %)	48 V DC (±5 %)	48 V DC (±5 %)	24 V DC (±5 %)	48 V DC (±5 %)			
5.3 min	4 min	4 min	2 min	4 min	4 min	2 min			

# HiPace® 350 / HiPace® 450

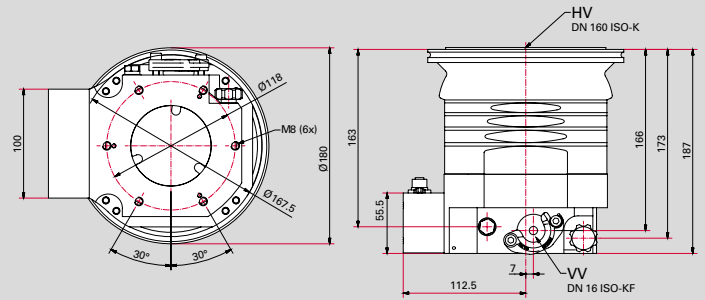
## Dimensional drawings, pumping speeds, order number matrix

### Dimensions

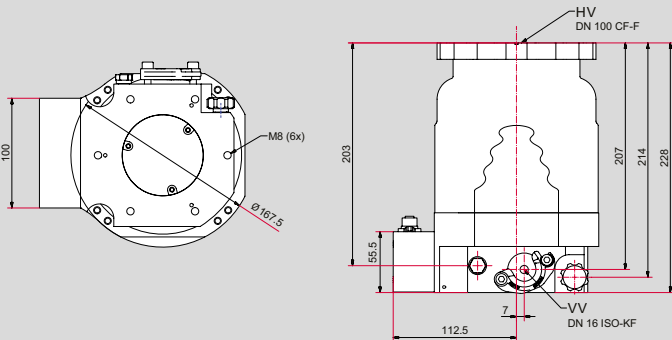
HiPace 350, DN 100 ISO-K



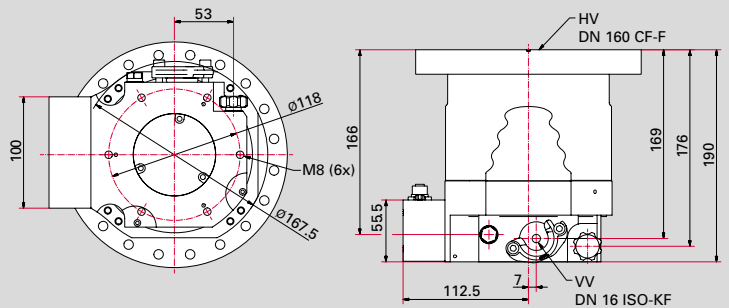
HiPace 450, DN 160 ISO-K



HiPace 350, DN 100 CF-F



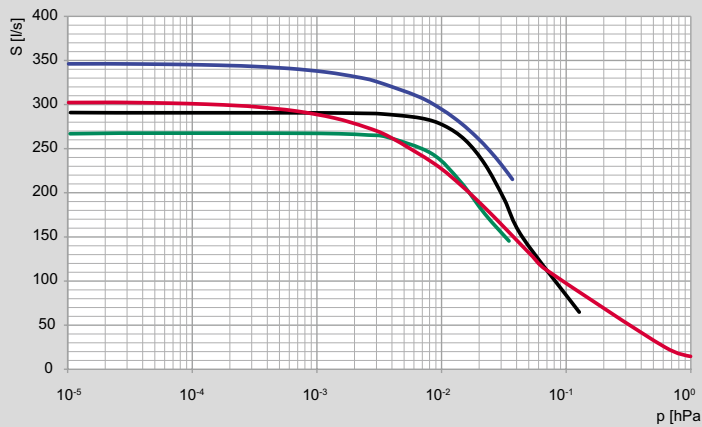
HiPace 450, DN 160 CF-F



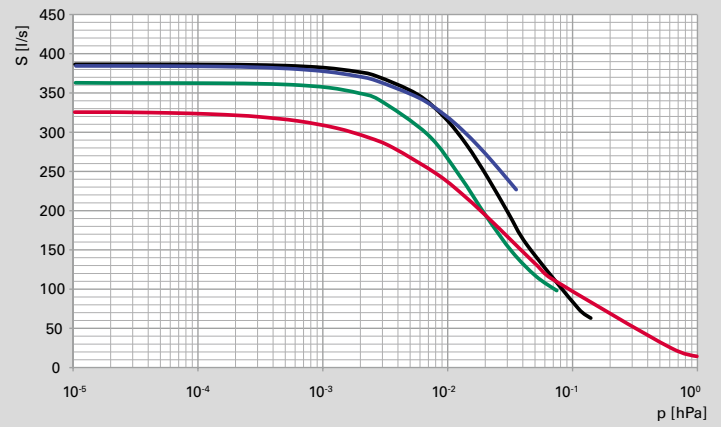
Dimensions in mm

### Pumping speeds

HiPace 350, DN 100



HiPace 450, DN 160



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

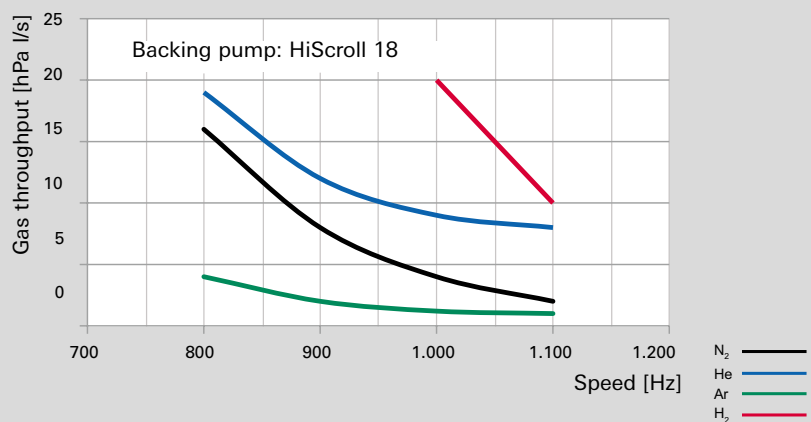
## Order number matrix for HiPace 350/450

Order number  
**PM P 070 cd1 fg**

Inlet flange (HV)	c
HiPace 350, DN 100	4
HiPace 450, DN 160	5
Flange type	d
ISO-K	0
CF-F	1
ISO-F	2
ISO-F special	3
Electronic drive unit	f
TC 110, 24 V	2
TC 120, 48 V	3
TC 400, 24 V	4
TC 400, 48 V	5
TCP 350	7
Interface/accessory ports	g
RS-485	0
ProfiBus	1
DeviceNet	2
E74	3
EtherCat	4
ProfiNet	5

## Gas throughput

HiPace 350/450



## 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?  
Please contact us:

Pfeiffer Vacuum GmbH  
Germany  
T +49 6441 802-0

[www.pfeiffer-vacuum.com](http://www.pfeiffer-vacuum.com)



Follow us on social media  
#pfeiffervacuum

**PFEIFFER**  **VACUUM**