



## HiPace<sup>®</sup> 80 Neo

The most reliable hybrid bearing turbopump with Laser Balancing™ technology.



Leak detectors



Electron microscopy



Mass spectrometry

# HiPace® 80 Neo

The hybrid bearing turbopump with Laser Balancing™ technology.



Extended thermal working range

Your added value



Durable and safe

## Patented Laser Balancing Technology

Thanks to the innovative laser balancing technology patented by Pfeiffer Vacuum, the HiPace 80 Neo has the lowest vibration level on the market as well as minimal noise emission. As a result, it offers the highest precision and is excellently suited for vibration-sensitive applications.

## Excellent temperature management

The integrated rotor temperature measurement system ensures that the HiPace 80 Neo delivers the best performance for your application at all times. With a housing temperature of up to 80 degrees, the thermal working range can be utilized to the maximum. Due to the integrated sensor system, HiPace turbopumps ensure maximum safe operation.

## Robust bearing for optimum reliability

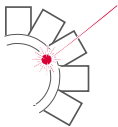
The hybrid bearing of the HiPace 80 Neo consists of an oil-lubricated, ceramic ball bearing on the fore-vacuum side and a permanent-magnet radial bearing on the high-vacuum side. As a result, this turbopump from the HiPace series has a particularly robust bearing that ensures excellent reliability.



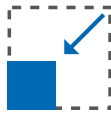
**Lowest operating costs  
due to innovative design**



**Easy commissioning and  
intelligent functions**



**Maximum precision  
thanks to patented  
Laser Balancing  
technology**



**Ultra-compact design  
with maximum  
performance**



**Robust bearing for  
optimum reliability**

### **Compact design and smart functions**

The HiPace 80 Neo offers high performance while taking up minimum space. Smaller, more compact and lighter than other turbopumps, it can be integrated into portable and mobile applications. It is ultra-compact and smart at the same time: Thanks to its micro AccessLink interfaces with automatic accessory recognition, the system can be quickly up and running in just a few steps.

### **Durable, cost-effective and virtually maintenance-free**

The HiPace 80 Neo is equipped with a new high-performance lubricant that guarantees additional safety and reliability for your application thanks to improved ageing resistance, enhanced lubrication behavior, higher temperature resistance and reduced outgassing. Continuous filtration of the lubricant results in more cost-effective maintenance, and maintenance-free operation for up to five years.

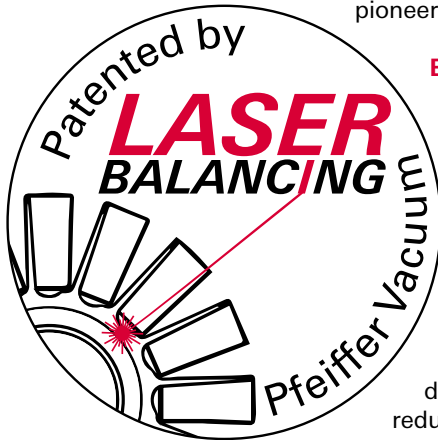
### **Applications**

- Stationary, mobile and portable mass spectrometry
- Electron microscopy
- Leak detectors
- RGA systems
- Accelerators
- Plasma cleaning
- 3D printing
- Load lock applications
- Helium dilution

# HiPace® 80 Neo

with patented  
Laser Balancing™ technology.

Pfeiffer Vacuum is the developer and patent holder of the pioneering Laser Balancing technology.



## Excellent balancing

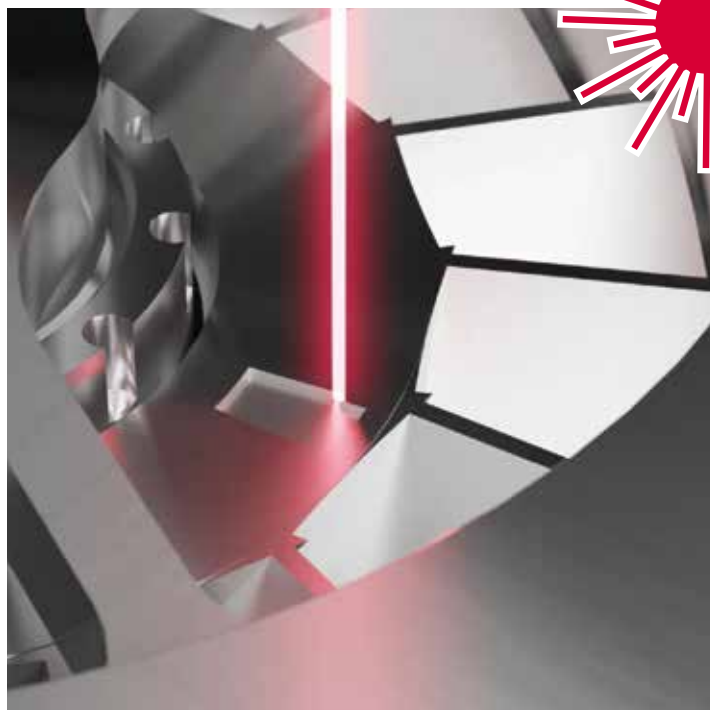
The rotor of a HiPace turbopump runs at up to 90,000 revolutions per minute. A jumbo aircraft engine, in comparison, operates with a maximum of just 30,000 revolutions per minute. At such speeds, the slightest imbalances, in the range of just a few milligrams, can have a major impact on the operation of the pump.

Good balancing is therefore relevant both for the smooth running of the rotor and for years of damage-free operation of the turbopump. It also reduces the vibrations transmitted to the vacuum chamber and to the customer's application.

## The revolution of balancing

Laser Balancing revolutionizes the conventional process of balancing by eliminating the need for balancing holes and balancing weights. Instead, defined laser ablation segments are removed and the uneven mass distribution of the rotor is precisely corrected in the individual balancing planes.

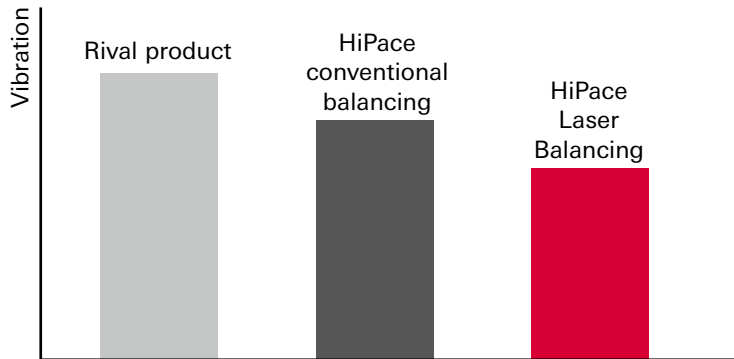
This balancing technology significantly improves the service life of the rotor while reducing the vibration and noise of the pump during operation.



**As a pioneer in  
laser ablation,  
Pfeiffer Vacuum  
is able to balance  
the rotor in the  
nanogram range.**

**Improved vibration level**

Compared to a turbopump with a conventionally balanced rotor, the HiPace achieves a 20% improvement in the level of vibration. This makes it ideal for use in even the most sensitive applications, such as electron microscopy, RGA systems and mass spectrometry.

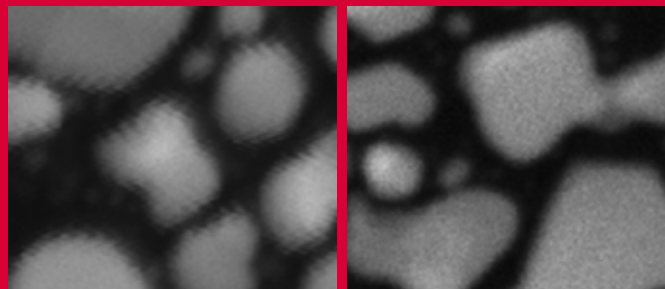


**Maximum surface cleanliness**

The particles produced in the course of laser ablation are extracted and filtered immediately during the process itself. The subsequent cleaning of the laser-balanced rotor and the elimination of manual handling for screw balancing ensure maximum cleanliness of the surfaces. Furthermore, virtual leakages caused by air pockets in the balancing holes are avoided.

**The result is the most reliable, low-noise, low-vibration turbomolecular pump on the market.**

**Comparison of two images from an electron microscope with integrated turbopump:**



Larger vibrations (~20 nm) at the high vacuum (HV) flange result in a blurred magnified image.

Smaller vibrations (~5 nm) produce a sharper image.

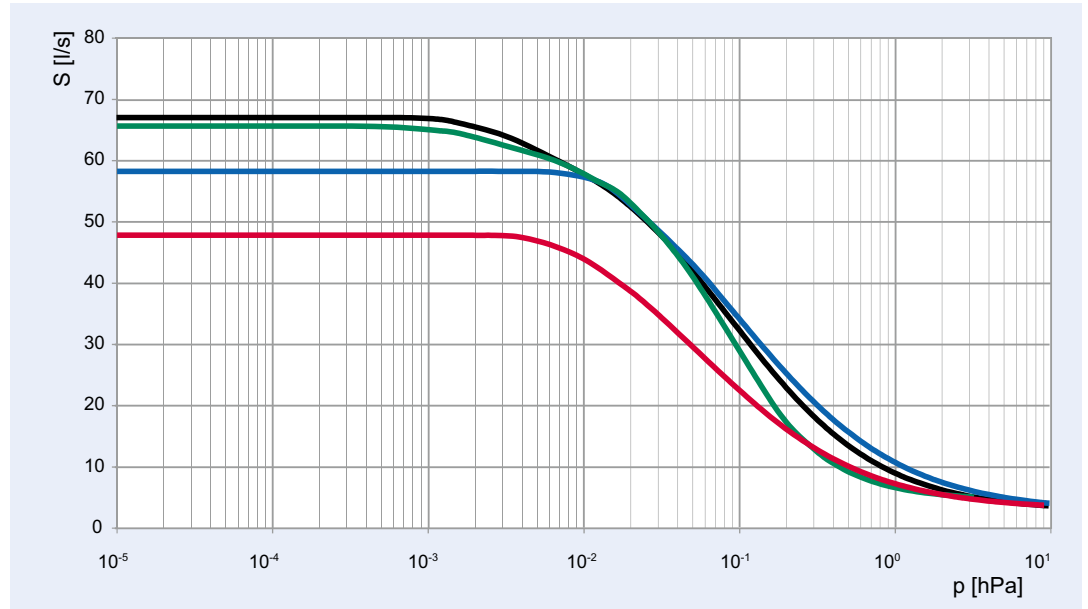
Pictures courtesy of Tescan, Czech Republic

# HiPace® 80 Neo

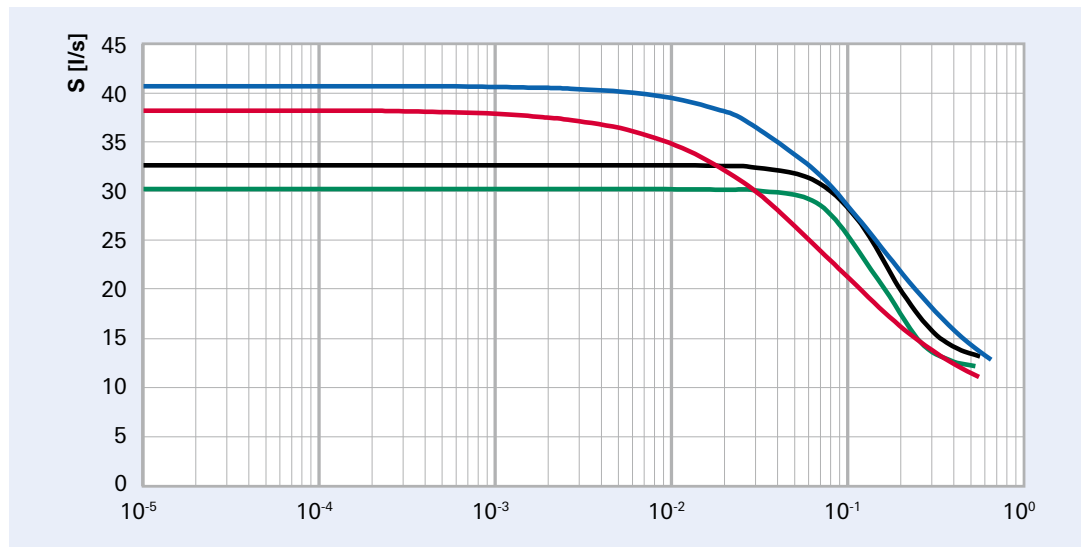
## Pumping speeds and dimensional drawings

### Pumping speeds

HiPace 80 neo DN 63



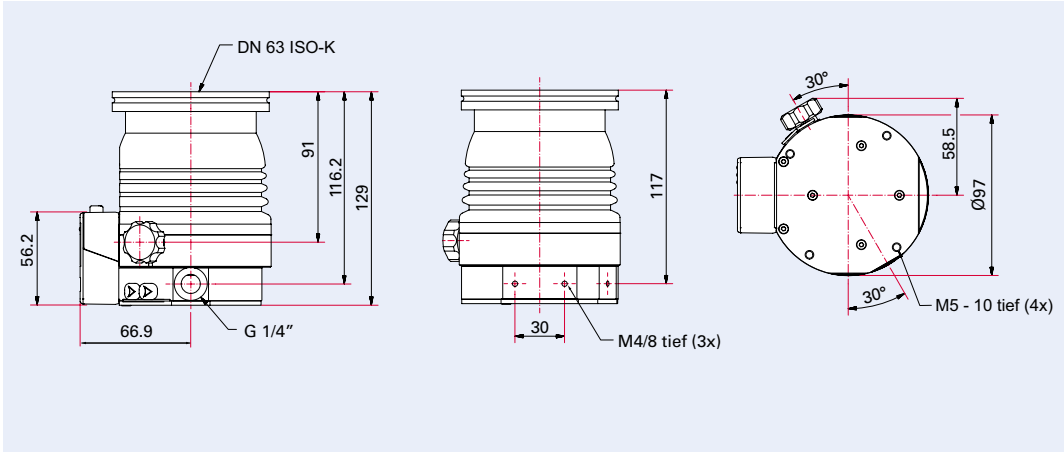
HiPace 80 neo DN 40



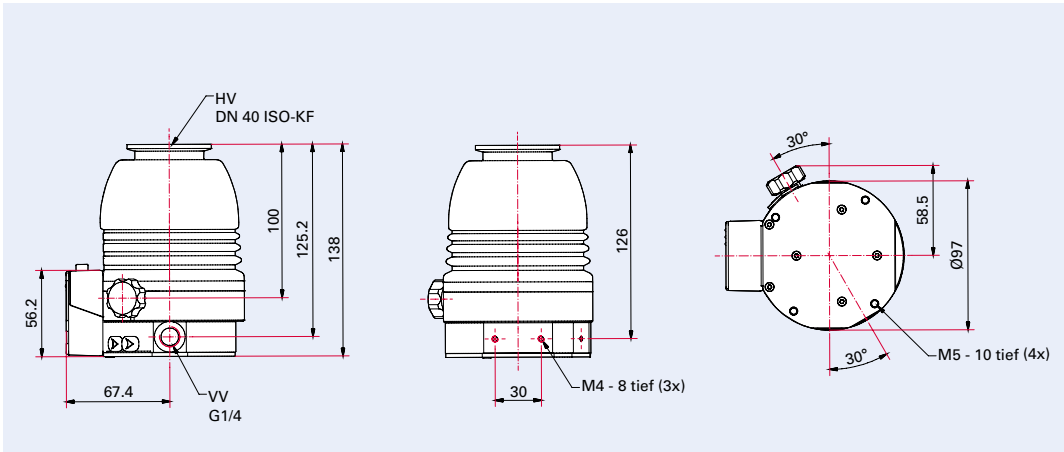
$N_2$  —  
He —  
Ar —  
 $H_2$  —

**Dimensions**

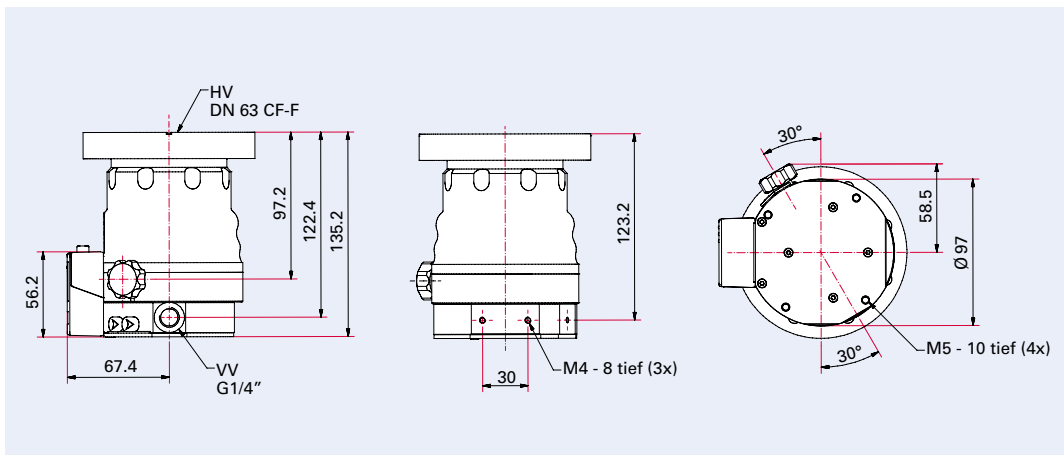
HiPace 80 Neo, DN 63 ISO-K



HiPace 80 Neo, DN 40 ISO-KF



HiPace 80 Neo, DN 63 CF-F



# HiPace® 80 Neo

Technical data,  
Order number matrix

## Technical data

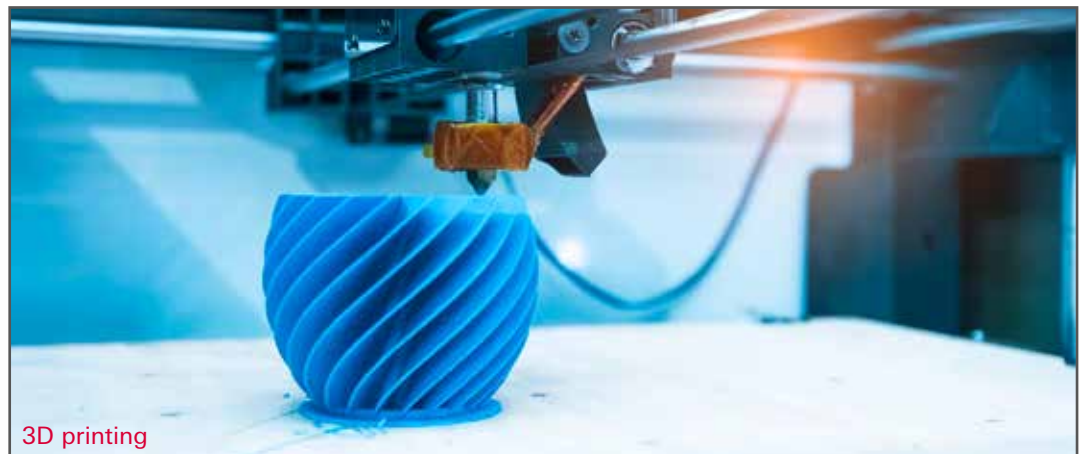
	HiPace 80 Neo with TC 80, DN 40 ISO-KF	HiPace 80 Neo with TC 80, DN 63 ISO-K	HiPace 80 Neo with TC 80, DN 63 CF-F
I/O interfaces	RS-485, Remote		
Sound pressure level	≤48 dB(A)		
Protection class	IP54/NEMA 12		
Run-up time	75 s		
Cooling type	Convection		
Cooling type, optional	Air/water		
Final pressure without gas ballast	1 · 10 <sup>-7</sup> hPa	1 · 10 <sup>-7</sup> hPa	5 · 10 <sup>-10</sup> hPa
Pumping speed for			
Ar	30 l/s	66 l/s	66 l/s
H <sub>2</sub>	38 l/s	48 l/s	48 l/s
He	41 l/s	58 l/s	58 l/s
N <sub>2</sub>	35 l/s	67 l/s	67 l/s
Gas throughput at full rotation speed for			
Ar	0.54 hPa·l/s		
H <sub>2</sub>	15.3 hPa·l/s		
He	2.7 hPa·l/s		
N <sub>2</sub>	1.3 hPa·l/s		
Gas throughput at full rotation speed, briefly, for			
Ar	2 hPa·l/s		
H <sub>2</sub>	30 hPa·l/s		
He	8 hPa·l/s		
N <sub>2</sub>	4 hPa·l/s		
Operating voltage	24 V DC (±10 %)		
Compression ratio for			
Ar	1 · 10 <sup>11</sup>		
H <sub>2</sub>	1.4 · 10 <sup>5</sup>		
He	1.3 · 10 <sup>7</sup>		
N <sub>2</sub>	1 · 10 <sup>11</sup>		
Fore-vacuum max. for N <sub>2</sub>	22 hPa		
Bearing	Hybrid		
Rotation speed ±2 %	90,000 min <sup>-1</sup>		
Rotation speed variable	50 – 100 %		
Mounting orientation	Any		
Weight	1.7 kg	1.7 kg	3.1 kg

HiPace 80 Neo

Up to 4 hPa l/s  
gas throughput for N<sub>2</sub>

22 hPa

Fore-vacuum max. for N<sub>2</sub>



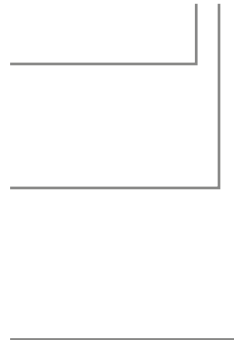
3D printing



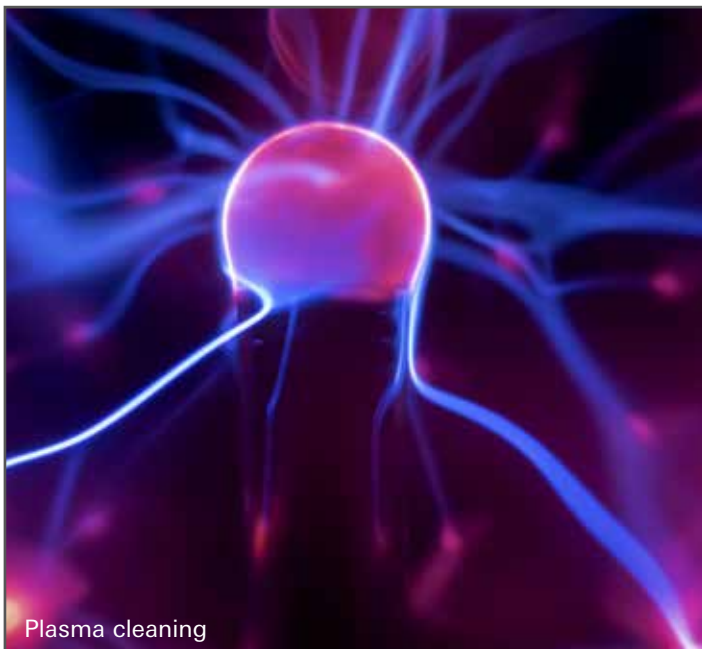
Order number matrix for HiPace 80 Neo

PM P 080 cde 10

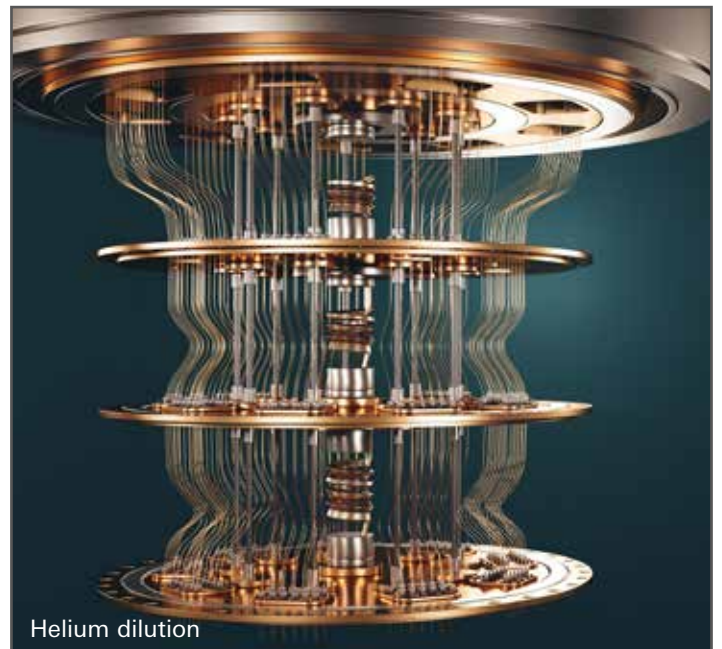
<b>Inlet flange (HV)</b>	<b>c</b>
DN 40	2
DN 63	3
<b>Flange type</b>	<b>d</b>
ISO-K	0
CF-F	1
ISO-KF	6
<b>Flange size, fore-vacuum connection</b>	<b>e</b>
DN 10	0
DN 16	1
DN 25	2
G 1/4"	6



Accelerators



Plasma cleaning



Helium dilution

# HiPace® 80 Neo

Details at a glance – accessories

## Details at a glance

Flange (inlet):  
DN 63 ISO-K

Flange (inlet):  
DN 63 CF



Flange (inlet):  
DN 40 ISO-KF



Voltage supply and  
RS-485 interface

Status LEDs

Integrated drive  
electronics TC 80

Venting screw

Fore-vacuum outlet G 1/4"

AccessLink accessory interfaces



**Accessories**

	HiPace 80 Neo with TC 80, DN 40 ISO-KF	HiPace 80 Neo with TC 80, DN 63 ISO-K	HiPace 80 Neo with TC 80, DN 63 CF-F
<b>Power supply units and displays</b>			
TPS 180, power supply unit for wall/ standard rail fitting		PM 061 341 -T	
TPS 181, power supply unit 19" rack module 3 HU		PM 061 345 -T	
OmniControl 001, rack unit without integrated power supply pack		PE D40 000 0	
OmniControl 200, rack unit with integrated power supply pack		PE D50 000 0	
OmniControl 001 Mobile, control units		PE D20 000 0	
<b>Cable</b>			
Power cable 230 V AC, CEE 7/7 to C13, 3 m		P 4564 309 ZA	
Power cable 115 V AC, NEMA 5-15 to C13, 3 m		P 4564 309 ZE	
Power cable 208 V AC, NEMA 6-15 to C13, 3 m		P 4564 309 ZF	
Connection cable (right angle) with RS-485 interface and 2 accessory ports for cable outlet 90° from TC 80/110/120 to power supply pack		PM 071 655 -T	
<b>Mounting kits</b>			
Mounting kit for HiPace 80, DN 40 ISO-KF, including centering ring and clamping ring	PM 016 625 -T		
Mounting kit for HiPace 80, DN 63 ISO-K, including coated centering ring and claws		PM 016 360 -T	
Hexagon Screw Set for flanges with through-holes, DN 63 CF-F			PM 016 683 -T
<b>Accessories for venting</b>			
Venting valve, shielded, 24 V DC, G 1/8", for connection to TC 80		PM Z01 290	
Venting valve, shielded, AccessLink, 24 V DC, G 1/8" for HiPace 80 Neo		PM Z01 295	
Shielded power failure venting unit, 24 V DC, G 1/8", for connection to TC 110/120		PM Z01 330	
<b>Accessories for cooling</b>			
Air cooling for HiPace 80 with TC 80		PM Z01 300	
Air cooling for HiPace 80, 230 V		PM Z01 343	
Air cooling for HiPace 80, 115 V		PM Z01 344	
Air cooling, shielded, AccessLink for HiPace 80 Neo		PM Z01 367	
Water cooling for HiPace 80 Neo		PM 026 100 -T	
<b>Pressure sensors</b>			
IKT 010, digital cold cathode sensor, low current		PT R72 550	
IKT 011, digital cold cathode sensor, high current		PT R73 550	
RPT 010, digital Piezo/Pirani sensor		PT R71 550	



You can find more accessories on our website at [www.pfeiffer-vacuum.com](http://www.pfeiffer-vacuum.com)

## Your Success. Our Passion.

We give our best for you every day –  
worldwide!

Are you looking for an  
optimal vacuum solution?  
Please contact us:

**Pfeiffer Vacuum GmbH**  
Germany  
Phone +49 6441 802-0



Errors excepted. All data subject to change without prior notice. PT 0206 PEN (July 2023/PoD)

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