



**HiLobe®**

The next generation of Roots pumps.

**PFEIFFER**  **VACUUM**

# HiLobe®

Roots pumps for low and medium vacuum applications.



**Optimal process adaptation  
through intelligent interface  
technology**

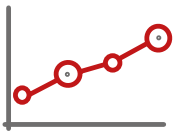
**Your added value**

## **Perfectly adjustable**

Roots pumps from the innovative HiLobe series offer a wide range of pumping speeds and applications. With their individual speed control, they can be adapted perfectly to customer-specific requirements. In order to operate, Roots pumps require a suitable backing pump for the application in hand, which is adjusted to the gas flow. Installation costs are reduced due to the flexible mounting position.

## **High performance**

The superior drive concept of the HiLobe pumps can shorten pump-down times by about 20% compared to conventional Roots pumps, especially for rapid evacuations. The pumps are hermetically sealed from the atmosphere and offer a maximum integral leak rate of  $1 \cdot 10^{-6}$  Pa m<sup>3</sup>/s.



### Low operating costs

The HiLobe series offers the lowest operating costs with the most uptime. This is achieved by using only motors with very high energy efficiency, even at different operating ranges, and optimized rotor geometries. The sealing concept makes the use of sealing gas superfluous in many cases, which reduces operating costs even more. Cost-intensive water cooling is no longer necessary due to the sophisticated air cooling concept.

### Intelligent

The intelligent interface technology of the HiLobe ensures optimal adjustment and condition monitoring of processes. Intelligent condition monitoring also guarantees a long service life and maximum operational reliability.

### Applications

- Electron beam welding
- Leak detection
- Metallurgy
- Coating
- Freeze drying
- Space simulation
- Vacuum packaging
- Battery production
- Vacuum drying, including transformer drying
- Insulation vacuum
- Distillation

# HiLobe®

Roots pumps for low and medium vacuum applications.



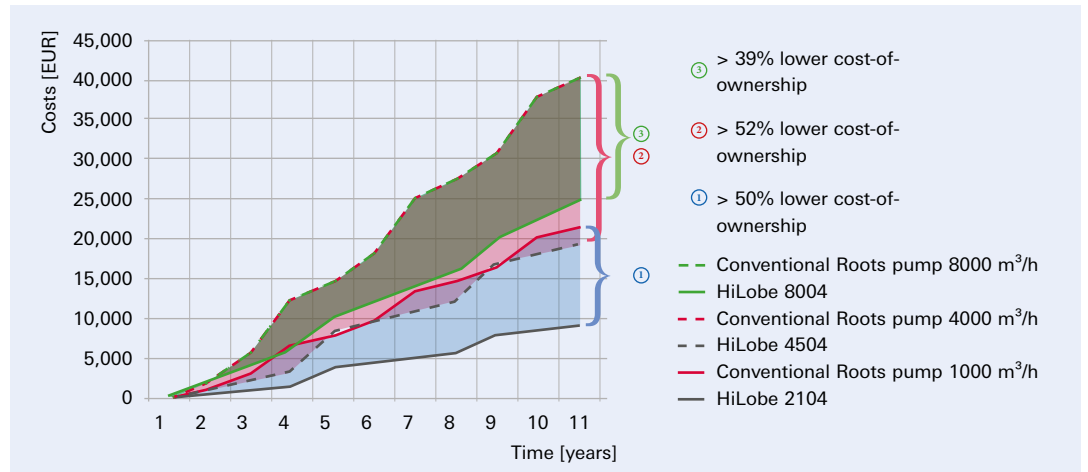
Innovative drive

**Innovative**  
Integrated and  
wear-free

**Hermetically  
sealed**  
with integrated  
motor  
(IPM – interior  
permanent magnet)

**Reduces  
operating costs**  
Execution  
in high energy  
efficiency class

## Comparison of costs for maintenance and energy



Automotive industry

# We promote sustainable solutions

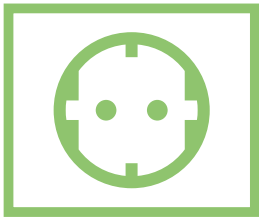
## Energy-saving and durable

Integrating modern HiLobe Roots pumps is a sustainable and environmentally friendly way to increase the efficiency of pumping stations. In addition to a long service life and high operational reliability, these pumps feature motors that already meet the future IE4 energy efficiency class. This also applies for a variety of operational areas (such as load lock, ultimate pressure). Thus they significantly contribute to reducing operating costs and energy use in particular. Thanks to the sophisticated ventilation concept of the HiLobe, complex water cooling can also be dispensed with, thereby saving resources and reducing your operating costs.

## Sustainability and social responsibility

Our CombiLine pumping stations are all optimally adapted to your process by our experts to find the most cost-effective and efficient solution for your application.

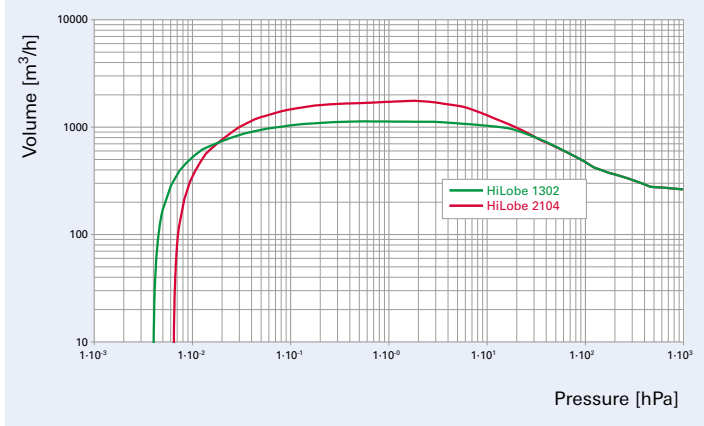
When procuring the various components and manufacturing our pumps, Pfeiffer Vacuum places the utmost importance on fair business practices, an employee-oriented human resources policy, economical use of natural resources, as well as climate and environmental protection.



## Pumping speed curves, pump-down curves and dimensional drawings

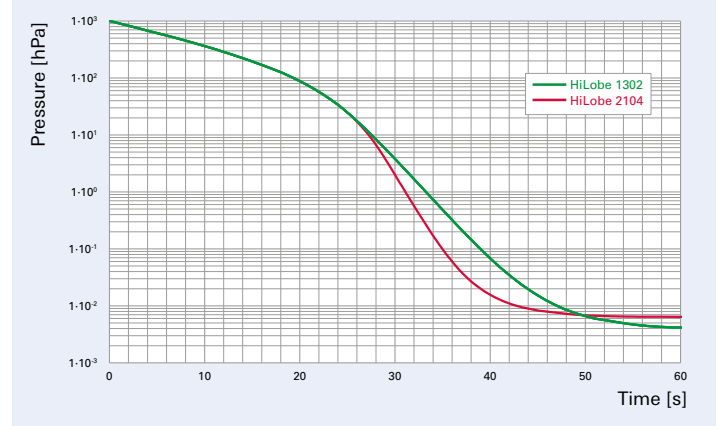
### Pumping speeds

HiLobe 1302/2104

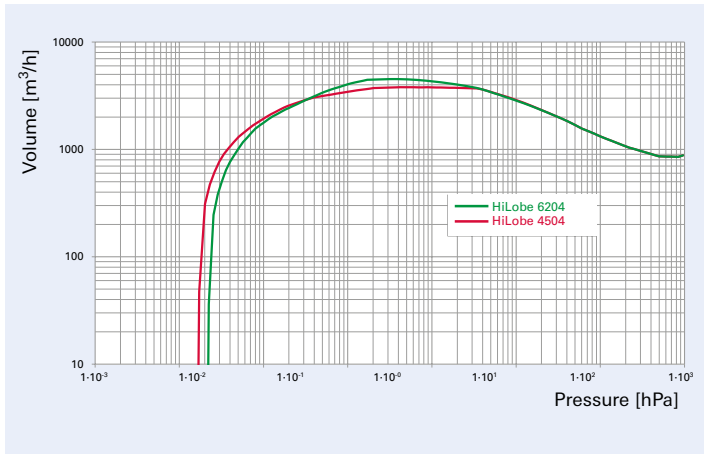


### Pump-down curves

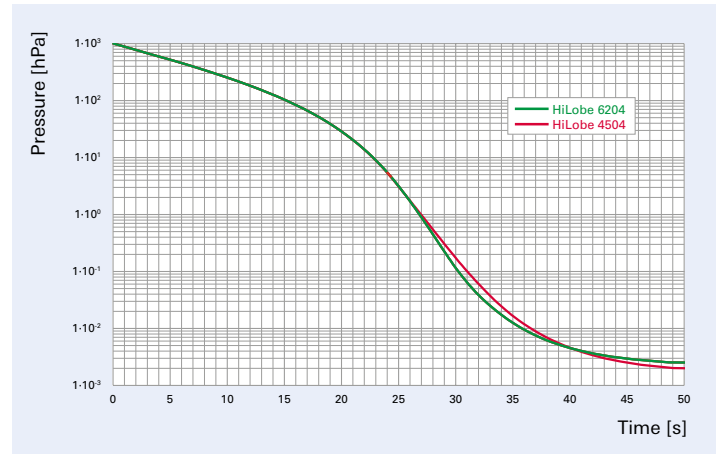
for 750 l volume, with Hepta 300 backing pump



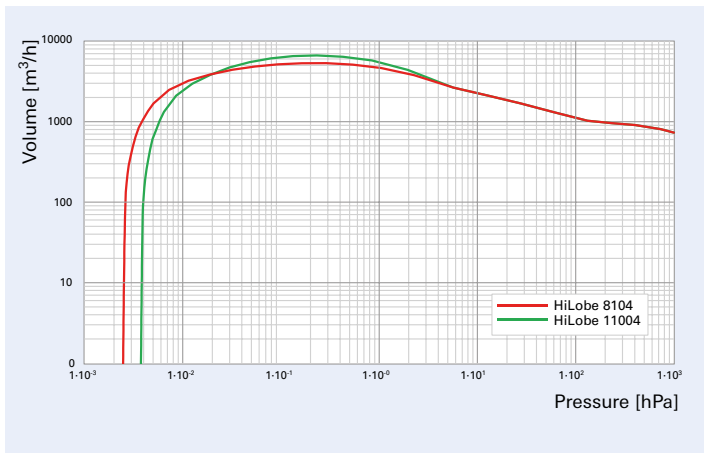
HiLobe 4504/6204



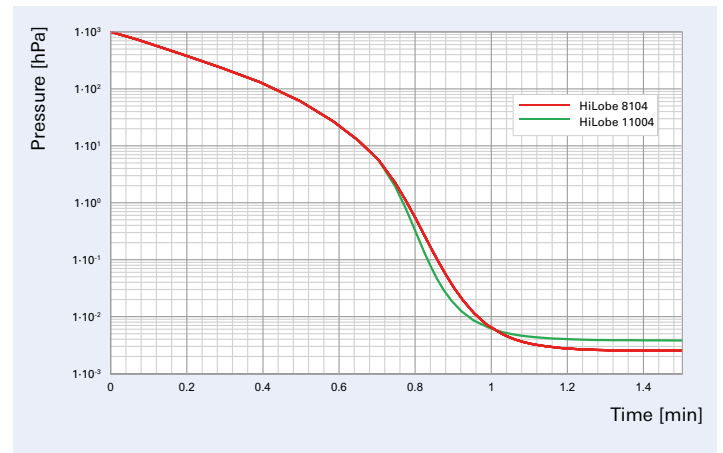
for 1800 l volume, with Hepta 950L backing pump



HiLobe 8104/11004

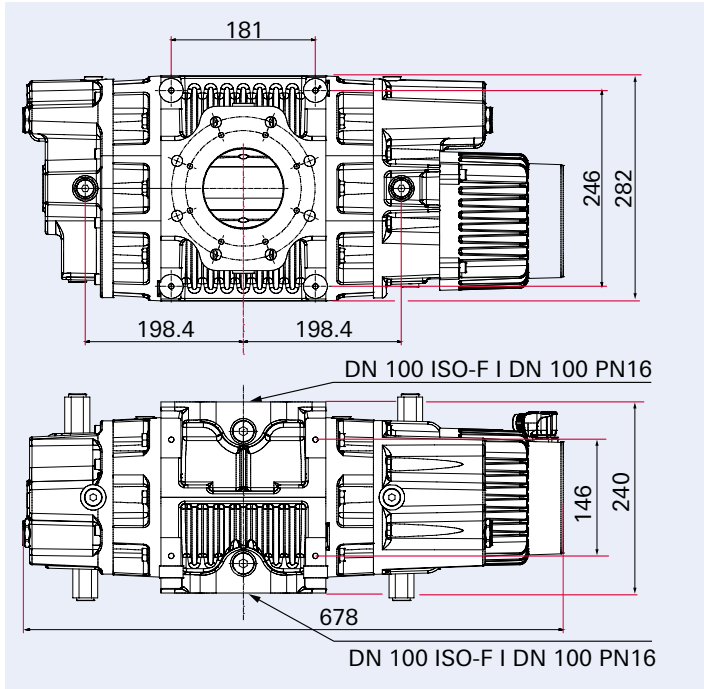


for 3000 l volume, with Hepta 950L backing pump

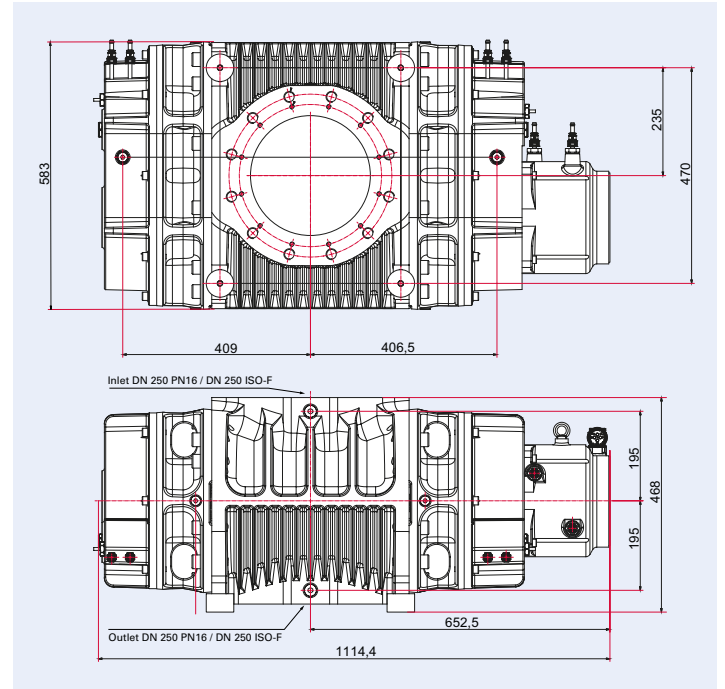


**Dimensions**

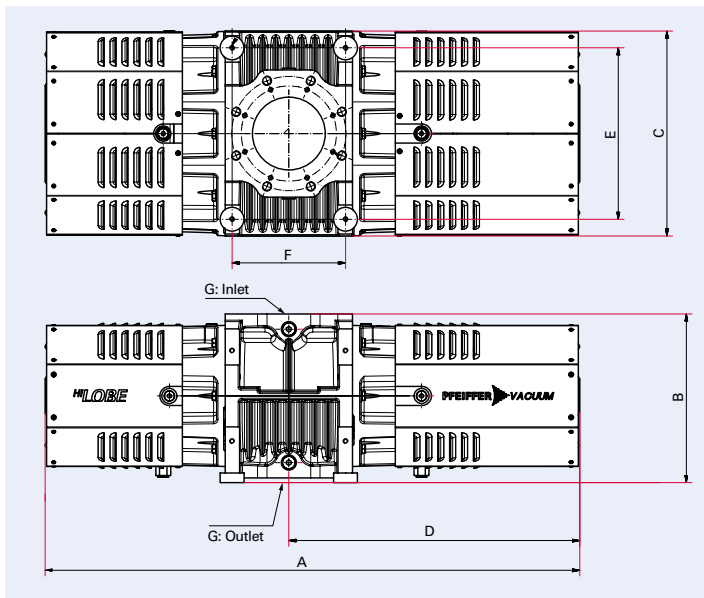
HiLobe 1302



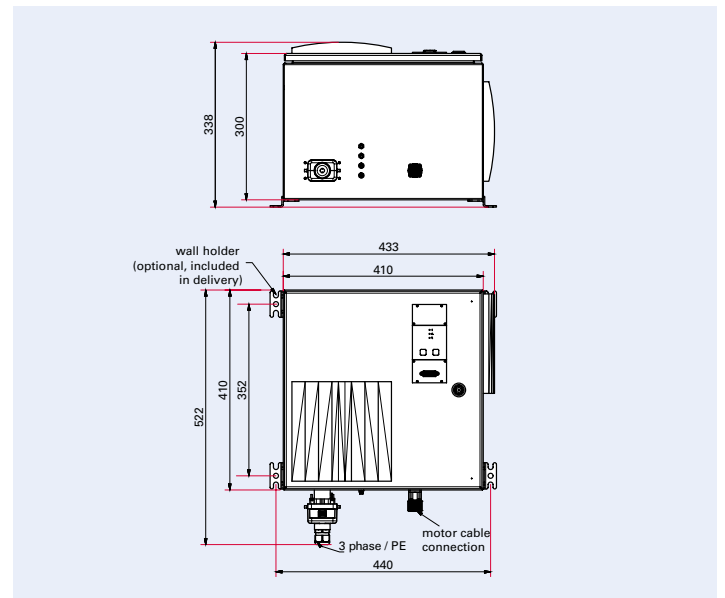
HiLobe 8103/11003/14003



HiLobe 1004/1304/2104/4504/6204/8104/11004/14004



RC 5500/RC 7500/RC 15000



	HiLobe 1004/1304/2104	HiLobe 4504/6204	HiLobe 8104/11004/14004
A	875	1122	1433
B	283	354	468
C	251	430	583
D	499	610,5	758
E	246	360	470
F	181	238	394
G	DN 100 ISO-F/DN 100 PN16	DN 160 ISO-F/DN 150 PN16	DN 250 PN16/DN 250 ISO-F

Dimensions in mm

## Technical data

### Technical data

	HiLobe 1004	HiLobe 1302	HiLobe 1304	HiLobe 2104
Flange (in)	DN 100 ISO-F   DN 100 PN16			
Flange (out)	DN 100 ISO-F   DN 100 PN16			
Mounting orientation	0° (HV flange up) 90° (HV flange at the side)			
Cooling type, standard	Air, integrated convection	Air, natural convection	Air, integrated convection	
Motor protection	PTC			
Maximum differential pressure at maximum speed	52 hPa	13 hPa	35 hPa	12 hPa
Maximum differential pressure at minimum speed	75 hPa	41 hPa	75 hPa	
I/O interfaces	RS-485, PV.can			
Nominal pumping speed	260 m <sup>3</sup> /h – 1,050 m <sup>3</sup> /h	260 m <sup>3</sup> /h – 1,300 m <sup>3</sup> /h	260 m <sup>3</sup> /h – 2,100 m <sup>3</sup> /h	
Speed	1,500–6,000 rpm	1,500–7,500 rpm	1,500–12,000 rpm	
Integral leak rate	< 1 · 10 <sup>-5</sup> mbar l/s			
Emission sound pressure level (EN ISO 2151) at intake pressure 1 hPa and nominal speed	67 dB(A)	60 dB(A)	68 dB(A)	69 dB(A)
Operating voltage/frequency	3~ 380-480 V AC +/-10% 50/60 Hz			
Nominal power at maximum speed	2 kW	2.5 kW	2.5 kW	3.5 kW
Operating fluids	D2			
Operating fluid quantity	0.65 l			
Dimensions (L x W x H)	875 x 282 x 240 mm	678 x 282 x 240 mm	875 x 282 x 240 mm	
Protection class	IP54			
Ambient temperature	5–40 °C			
Weight	115 kg	105 kg	115 kg	

### HiLobe 14004

**13,600 m<sup>3</sup>/h**

Nominal pumping speed

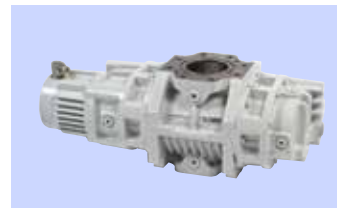
**15 kW**

Nominal power at maximum speed



### Size and mounting options

Vertically mounted



Horizontally mounted



**HiLobe 1302**  
with convection cooling,  
separate frequency converter  
and connection cable

**HiLobe 1004/1304/2104**  
with integrated air cooling,  
frequency converter and  
connection cable



HiLobe 2704	HiLobe 4504	HiLobe 6204	HiLobe 8103	HiLobe 11003	HiLobe 14003	HiLobe 8104	HiLobe 11004	HiLobe 14004
DN 160 ISO-F   DN 150 PN16			DN 250 ISO-F   DN 250 PN16					
DN 160 ISO-F   DN 150 PN16			DN 250 ISO-F   DN 250 PN16					
0° (HV-Flansch oben) 90° (HV-Flansch seitlich)			0° (HV flange up)					
Air, integrated convection			Water cooling			Air, integrated convection		
PTC								
35 hPa	17 hPa	10 hPa	25 hPa	20 hPa	10 hPa	25 hPa	20 hPa	10 hPa
50 hPa			30 hPa			30 hPa		
RS-485, PV.can								
890 m³/h – 2,700 m³/h	890 m³/h – 4,440 m³/h	890 m³/h – 6,220 m³/h	2,700 m³/h – 8,100 m³/h	2,700 m³/h – 10,800 m³/h	2,700 m³/h – 13,600 m³/h	2,700 m³/h – 8,100 m³/h	2,700 m³/h – 10,800 m³/h	2,700 m³/h – 13,600 m³/h
1,500-4,500 rpm	1,500-7,500 rpm	1,500-10,500 rpm	1,500-4,500 rpm	1,500-6,000 rpm	1,500-7,500 rpm	1,500-4,500 rpm	1,500-6,000 rpm	1,500-7,500 rpm
< 1 · 10 <sup>-5</sup> mbar l/s								
62 dB(A)	65 dB(A)		70 dB (A)			75 dB (A)		
3~ 380-480 V AC +/-10% 50/60 Hz								
5.5 kW		7.5 kW	9 kW	12 kW	15 kW	9 kW	12 kW	15 kW
D2								
3.2 l			3.0 l			5.2 l		
1,112 x 430 x 354 mm			1,115 x 583 x 468 mm			1,433 x 583 x 468 mm		
IP54								
5-40 °C								
280 kg			620 kg			670 kg		

**HiLobe 2704/4504/6204**  
with air cooling,  
separate frequency converter  
and connection cable

**HiLobe 8103/11003/14003**  
with integrated water cooling,  
separate frequency converter  
and connection cable

**HiLobe 8104/11004/14004**  
with air cooling,  
separate frequency converter  
and connection cable



**Comparison of versions**

	Integrated water cooling	Integrated active air cooling	Convection cooling	Frequency converter and connection cable included in delivery	Pumping speeds
HiLobe 1004		■		■	up to 1,050 m³/h
HiLobe 1302			■	■	up to 1,300 m³/h
HiLobe 2104		■		■	up to 2,100 m³/h
HiLobe 2704/4504/6204		■		■	up to 6,200 m³/h
HiLobe 8103/11003/14003	■			■	up to 13,600 m³/h
HiLobe 8104/11004/14004		■		■	up to 13,600 m³/h

## Accessories and order number matrix

### Accessories

General accessories	Order number
<b>Controller/cable</b>	
RJ 45 interface cable on M12	PM 051 726 -T
USB RS-485 converter	PM 061 207 -T
Interface cable, M12 m straight/M12 m straight	PM 061 283 -T
Interface cable, M12 m straight/M12 m angled	PM 061 791 -T
TCS 11, adapter for TC 110/120	PM 061 636 -U
Converter package ProfiNet	PE 300 301 -T
Converter package EtherCat	PE 300 311 -T

Process accessories	Order number
Sealing Gas Kit (Plastic Tube)	PP 100 091 -T
Gear Box Evacuation (Plastic Tube)	PP 100 092 -T

Operating fluids	Order number
P3, mineral oil, 0,5 l	PK 001 136 -T
P3, mineral oil, 1 l	PK 001 106 -T
P3, mineral oil, 5 l	PK 001 107 -T
P3, mineral oil, 20 l	PK 001 108 -T
D2, 1 l	PK 005 875 AT
D2, 5 l	PK 005 876 AT
D2, 20 l	PK 005 877 AT
F5, 0,5 l	PK 001 851 -T
F5, 1 l	PK 001 852 -T
F5, 5 l	PK 001 853 -T

Accessories for HiLobe 1302 – 2104	Order number
<b>Components/Seals</b>	
Centering ring with splinter shield, DN 100 ISO	PM 016 211 AU
Splinter shield, DN 100 PN16	PP 042 350 -X

Process accessories	Order number
Spray lance G1/2"	PP 042 765 -U
Temperature sensor, PT100	PP 100 090 -T

Accessories for HiLobe 270x – 620x	Order number
<b>Components/Seals</b>	
Centering ring with splinter shield, DN 160 ISO	PM 016 217 AU
Splinter shield, DN 150 PN16	PP 031 115 -X
Extension cable package 5 m <sup>1)</sup>	PP 100 306 -T

Process accessories	Order number
Spray lance G1/2"	PP 042 765 -U
Temperature sensor, PT100	PP 200 090 -T

Accessories for HiLobe 810x – 1400x	Order number
<b>Components/Seals</b>	
Centering ring with splinter shield, DN 250 ISO	PM 016 226 AU
Splinter shield, DN 250 PN16	PP 031 137 -X
Extension cable package 5 m <sup>1)</sup>	PP 300 306 -T

Process accessories	Order number
Spray lance G1/2"	PP 046 146 -U
Temperature sensor, PT100	PP 300 090 -T

<sup>1)</sup> other lengths of the extension cable package can be found on the web page of the respective product.



**Order number matrix  
HiLobe**

**Order number  
PP Vab cde**

<b>Size and direction of flow</b>	<b>a</b>
HiLobe 100x – 210x – Vertical	2
HiLobe 100x – 210x – Horizontal	3
HiLobe 270x – 620x – Vertical	4
HiLobe 270x – 620x – Horizontal	5
HiLobe 810x – 1400x – Vertical	6

<b>Maximum pumping speed</b>	<b>b</b>
HiLobe 100x = 1.050 m <sup>3</sup> /h HiLobe 270x = 2.700 m <sup>3</sup> /h HiLobe 810x = 8.100 m <sup>3</sup> /h	0
HiLobe 130x = 1.300 m <sup>3</sup> /h HiLobe 450x = 4.500 m <sup>3</sup> /h HiLobe 1100x = 11.000 m <sup>3</sup> /h	1
HiLobe 210x = 2.100 m <sup>3</sup> /h HiLobe 620x = 6.200 m <sup>3</sup> /h HiLobe 1400x = 13.600 m <sup>3</sup> /h	2

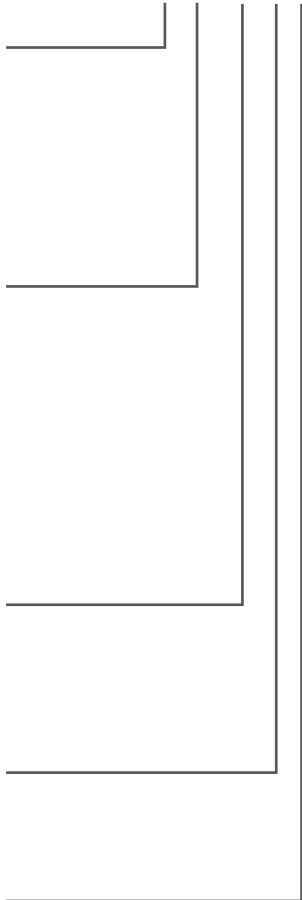
<b>Cooling<sup>1)</sup></b>	<b>c</b>
Convection cooling <sup>2)</sup>	2
Integrated water cooling <sup>4)</sup>	3
Integrated air cooling	4

<b>Electronic drive unit</b>	<b>d</b>
RC (Roots Control), 305-528 V, 50/60Hz	0
RC (Roots Control), 180-260 V, 50/60Hz	2

<b>Operating fluids</b>	<b>e</b>
P3	0
D2	1
F5 <sup>3)</sup>	2

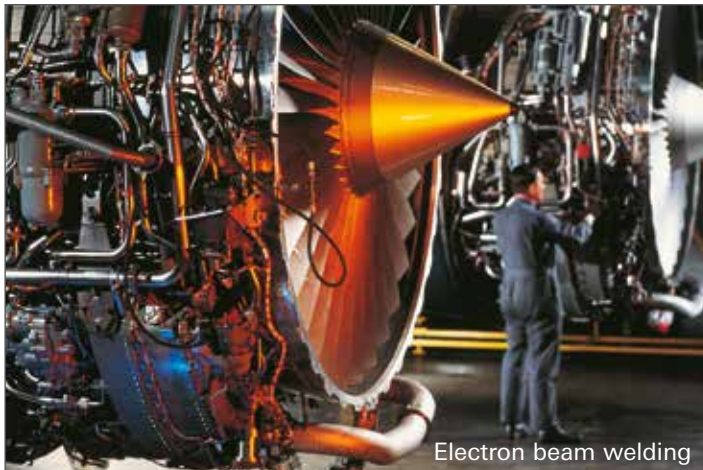


<sup>1)</sup> Alternative version on request

<sup>2)</sup> Only for HiLobe 1302

<sup>3)</sup> Only for HiLobe 8103–14004

<sup>4)</sup> Only for HiLobe 8103–14003



Electron beam welding



Coating

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worldwide!

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optimized vacuum solution?  
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Germany  
T +49 6441 802-0



All information is subject to change without prior notice. PW 0039 PEN (March 2022/PoD)

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