

## LPH 50523 LPH 60527

**Pressure range:** 0.2 to 1.5 bar  
**Suction volume range:** 260 to 780 m<sup>3</sup>/h

### CONSTRUCTION

Sterling SIHI liquid ring compressors are displacement compressors with a simple but robust construction and the following features and benefits:

- Can handle almost all gases and vapours
- Near isothermal compression
- Oil free with no internal lubrication required
- Able to handle quantities of liquid carry over
- Low maintenance and safe operation
- Low noise and almost vibration free
- Available in a wide range of materials
- Broad range of applications
- O-Ring sealing as standard
- Central drain plug as standard
- Built in solids drain
- ATEX compliance
- Rotating metallic parts are non contacting to minimise wear

The Sterling SIHI liquid ring compressors LPH 50523 and LPH 60527 are one stage. They can be used without modification as vacuum pumps up to a suction pressure of 120 mbar (for more information see Catalogue Part LI 3 and LI 4).

### APPLICATION

Transport and compression of dry gases and saturated vapours. The pumps can also handle liquids. Compressors are used typically where a pressure of up to 1.5 bar is required and only a limited temperature increase due to the compression is permitted.

Applications include:

- The plastics processing industry for the recovery of gases such as vinyl chloride
- The petrochemical industry for the compression of flammable gases such as petroleum vapours or hydrogen
- Gas transfer e.g. to a reactor.



### NOTE

By continuously feeding the compressor with a small amount of service liquid (usually water), the heat due to gas/vapour compression is conducted away. This also replenishes the liquid ring and ensures that it does not become saturated with process media. The condensed gas and fluid can be separated in a liquid separator (see Accessories Catalogue). Recharging the pump with service liquid at ambient temperature enables the unit to condense evacuated gases/vapours. More information is provided in the accessory catalogues.

The rotation of the pump is clockwise when viewed from the drive side.

### GENERAL TECHNICAL DATA

Pump Type	Units	LPH 50523	LPH 60527
Speed	50 Hz	rpm	1450
	60 Hz	rpm	1750
Maximum compression over atmospheric	bar	1.5	1.2
Water pressure test (overpressure)	bar	3.0	3.0
Moment of inertia of rotating parts of pump and of water content	kg · m <sup>2</sup>	0.025	0.36
Surface noise level	dB (A)	70	70
Minimum permissible pulley diameter for V- belt drive	mm	250	250
Maximum gas temperature	dry	°C	200
	saturated	°C	100
Service liquid	Maximum permissible temperature	°C	80
	Minimum permissible temperature	°C	10
	Maximum viscosity	mm <sup>2</sup> /s	90
	Maximum density	kg/m <sup>3</sup>	1200
	Liquid capacity up to middle of shaft	litre	12.0

In selecting a compressor, avoid choosing one which is likely to be operating at a combination of its maximum permissible limits.

## Materials

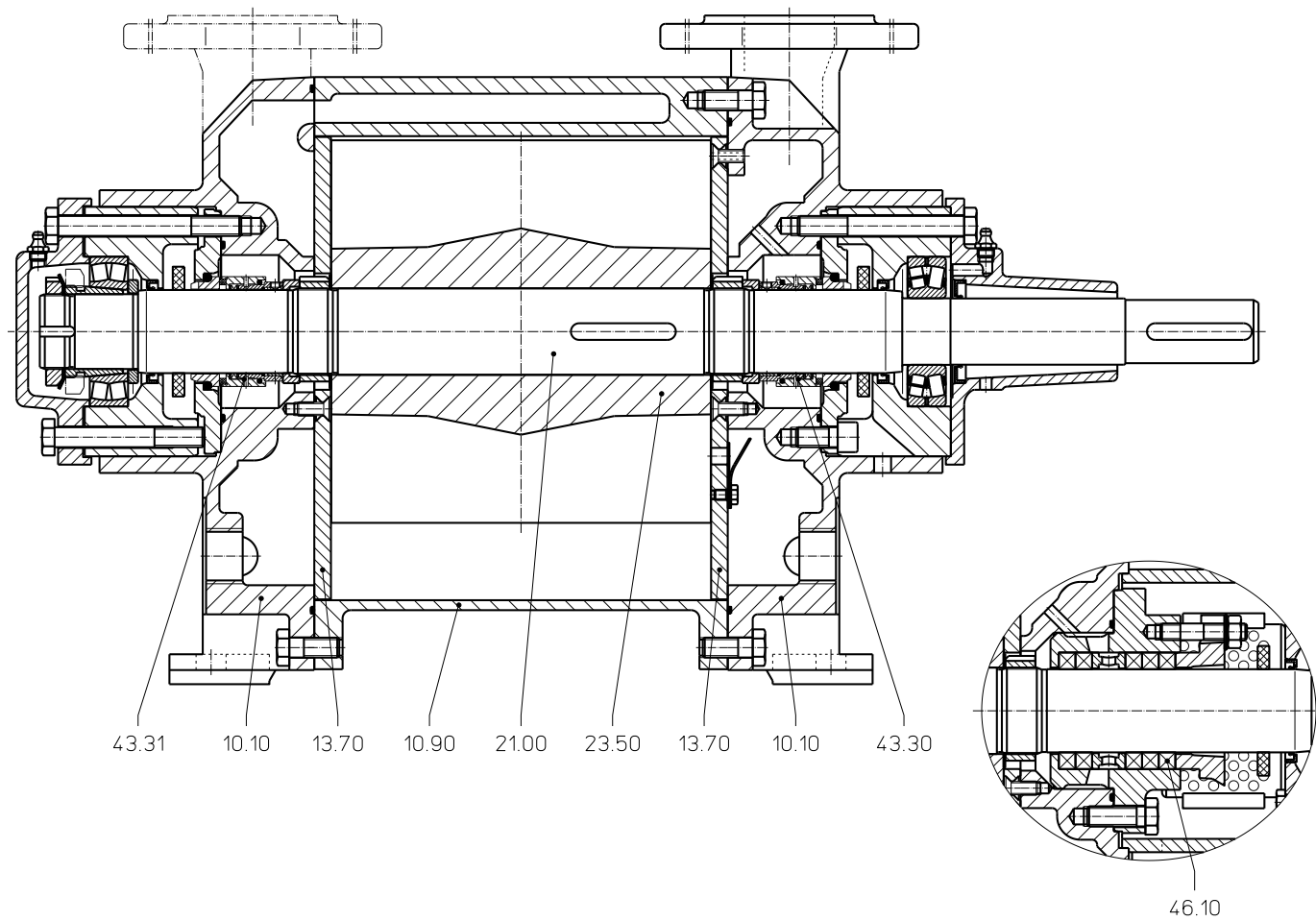
Position Number	COMPONENT	MATERIALS		
		0K *	0B **	4B
10.60	Vacuum casing	0.6025		1.4408
10.90	Central body			
13.70	Guide disc			1.4404
21.00	Shaft	1.4021		
23.50	Impeller	1.4308	1.0553	1.4408
43.30, 43.31	Mechanical seal Type SIHI FK (AG•)	Cr-Steel / Carbon / Butadiene Rubber		Cr Ni Mo-Steel / Carbon / Viton
46.10	Gland packing	GORE		-

\* only LPH 50523

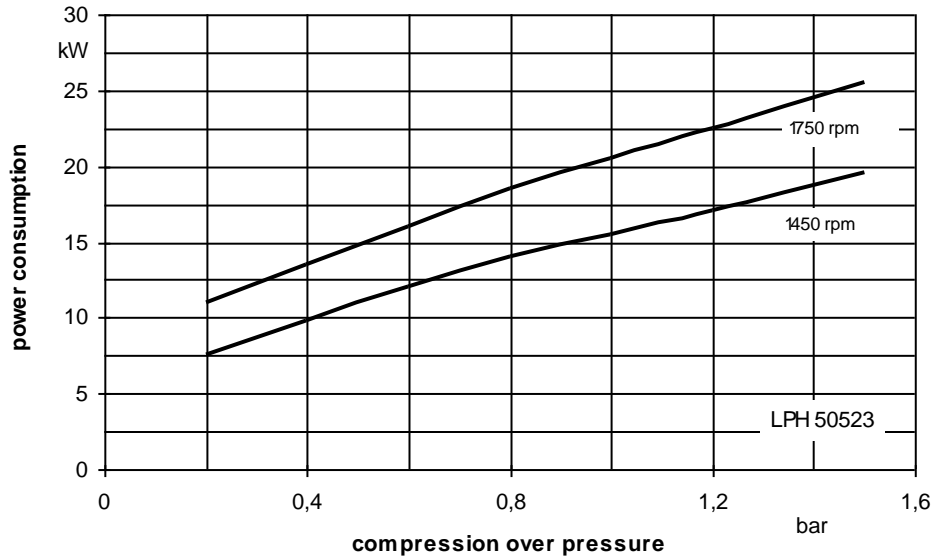
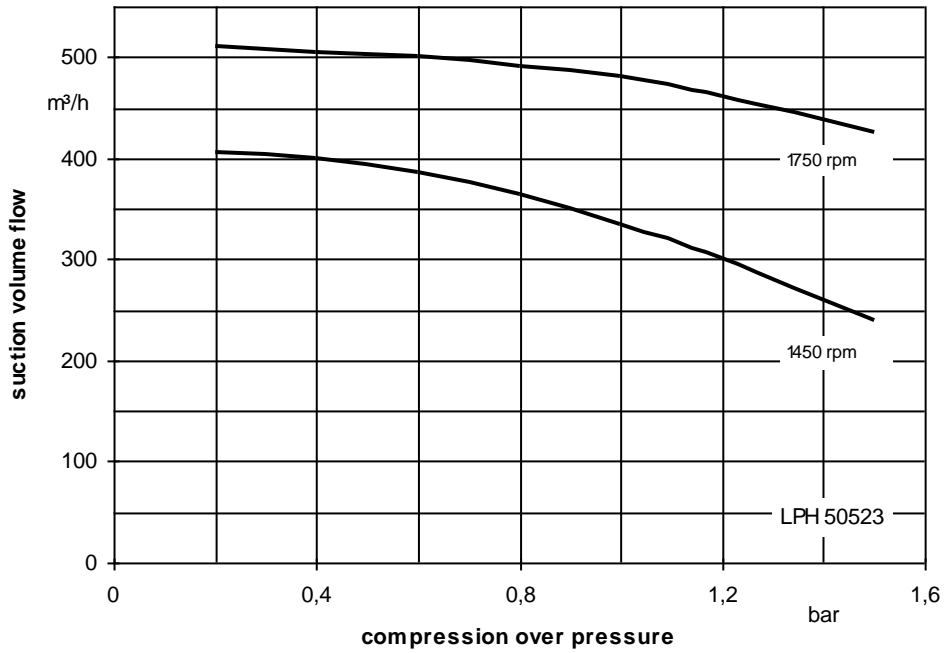
\*\* only LPH 60527

other executions on request

## Cut Away Diagram LPH 50523, LPH 60527



## Performance Characteristics LPH 50523

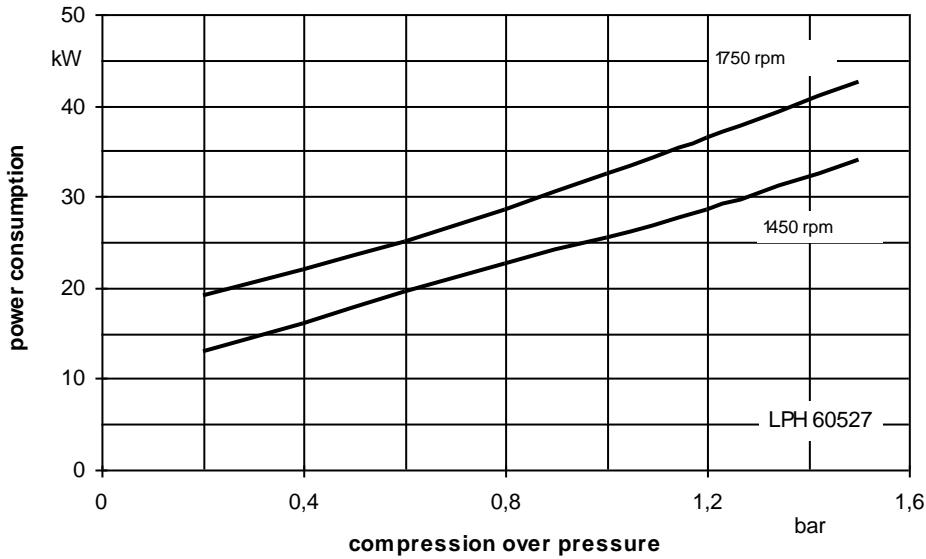
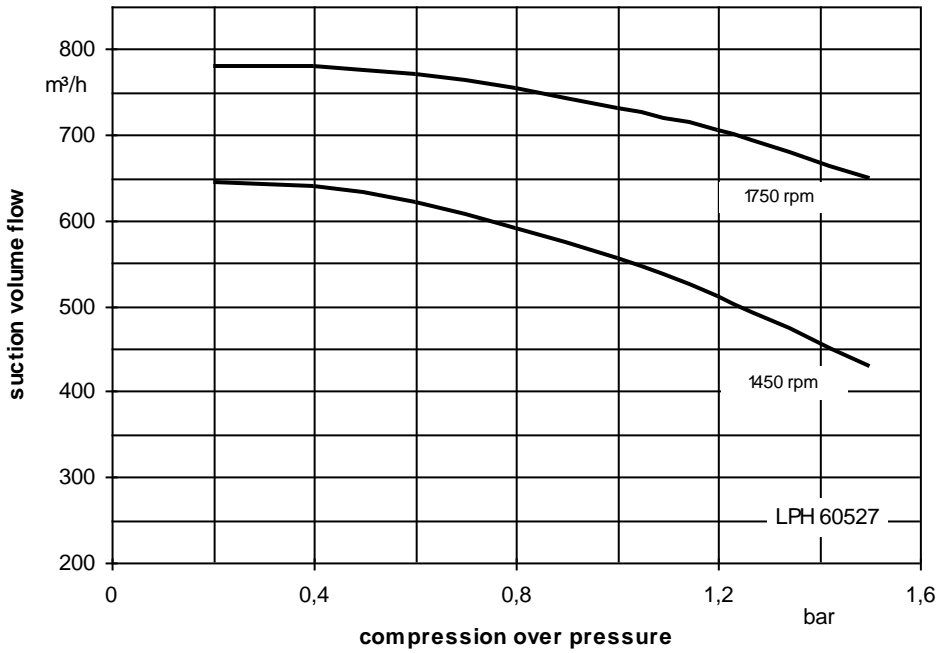


The suction volume and power consumed values are valid for compressing dry air at 20°C at atmospheric pressure (1013 mbar) to the corresponding overpressure using water as the service liquid with a temperature of 20°C. The curve tolerance is 10%. The compression pressure is expressed in bar relative to ambient air pressure.

The values quoted will change with variations in the operating conditions e.g. when the physical properties of the gas to be compressed change or there are changes in the service liquid (vapour pressure, temperature, density, viscosity), with liquid, carry over, with suction pressures different from atmospheric pressure or with gas – vapour mixtures.

To determine operating data when the operating conditions vary from those quoted, please consult Technical Catalogue Part TH.

## Performance Characteristics LPH 60527



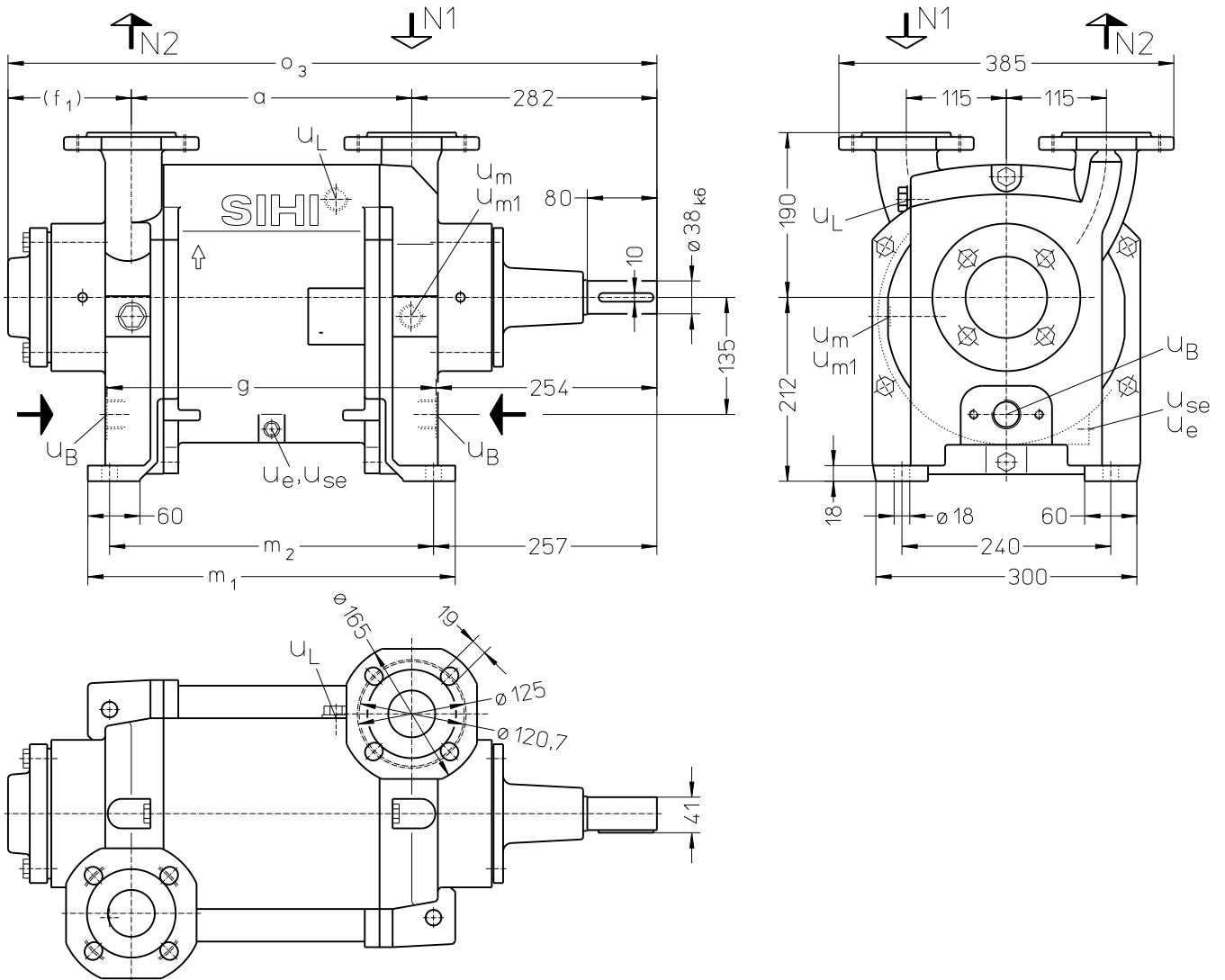
The suction volume and power consumed values are valid for compressing dry air at 20°C at atmospheric pressure (1013 mbar) to the corresponding overpressure using water as the service liquid with a temperature of 20°C. The curve tolerance is 10%. The compression pressure is expressed in bar relative to ambient air pressure.

The values quoted will change with variations in the operating conditions e.g. when the physical properties of the gas to be compressed change or there are changes in the service liquid (vapour pressure, temperature, density, viscosity), with liquid carry over, with suction pressures different from atmospheric pressure or with gas – vapour mixtures.

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# SIHI LPH-X

## Dimensions LPH 50523

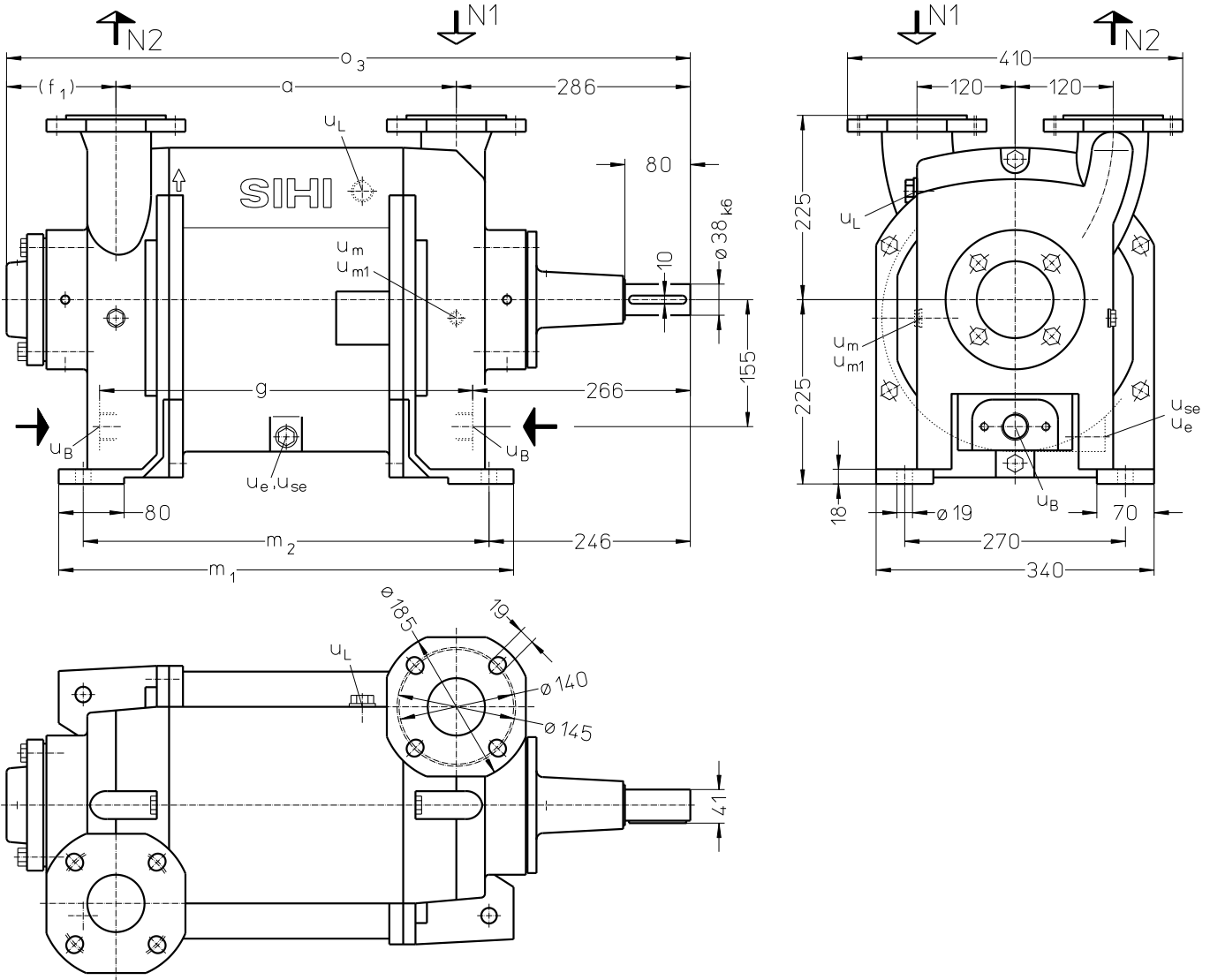


- N 1 = Gas inlet DN 50 (according to DIN EN 1092 PN 10)  
Gas inlet 2" (according to ANSI 150 lbs)
- N 2 = Gas outlet DN 50 (according to DIN EN 1092 PN 10)  
Gas outlet 2" (according to ANSI 150 lbs)
- U<sub>B</sub> = Connection for service liquid G 1
- U<sub>e</sub> = Connection for drain G ¼ (grey cast iron)  
Connection for drain G ½ (stainless steel)
- U<sub>se</sub> = Connection for dirt drain G ¼ (grey cast iron)  
Connection for dirt drain G ½ (stainless steel)
- U<sub>L</sub> = Connection for air cock G ¾
- U<sub>m</sub> = Connection for pressure gauge G ¾
- U<sub>m1</sub> = Connection for drainage valve or liquid level sensor G ¾

	Execution	a [mm]	f <sub>1</sub> [mm]	g [mm]	m <sub>1</sub> [mm]	m <sub>2</sub> [mm]	o <sub>3</sub> [mm]	approx. weight [kg]
LPH 50523	Mechanical seal	322	142	378	422	372	746	160
	Gland packing		219				823	

# SIHI<sup>LPH-X</sup>

## Dimensions LPH 60527

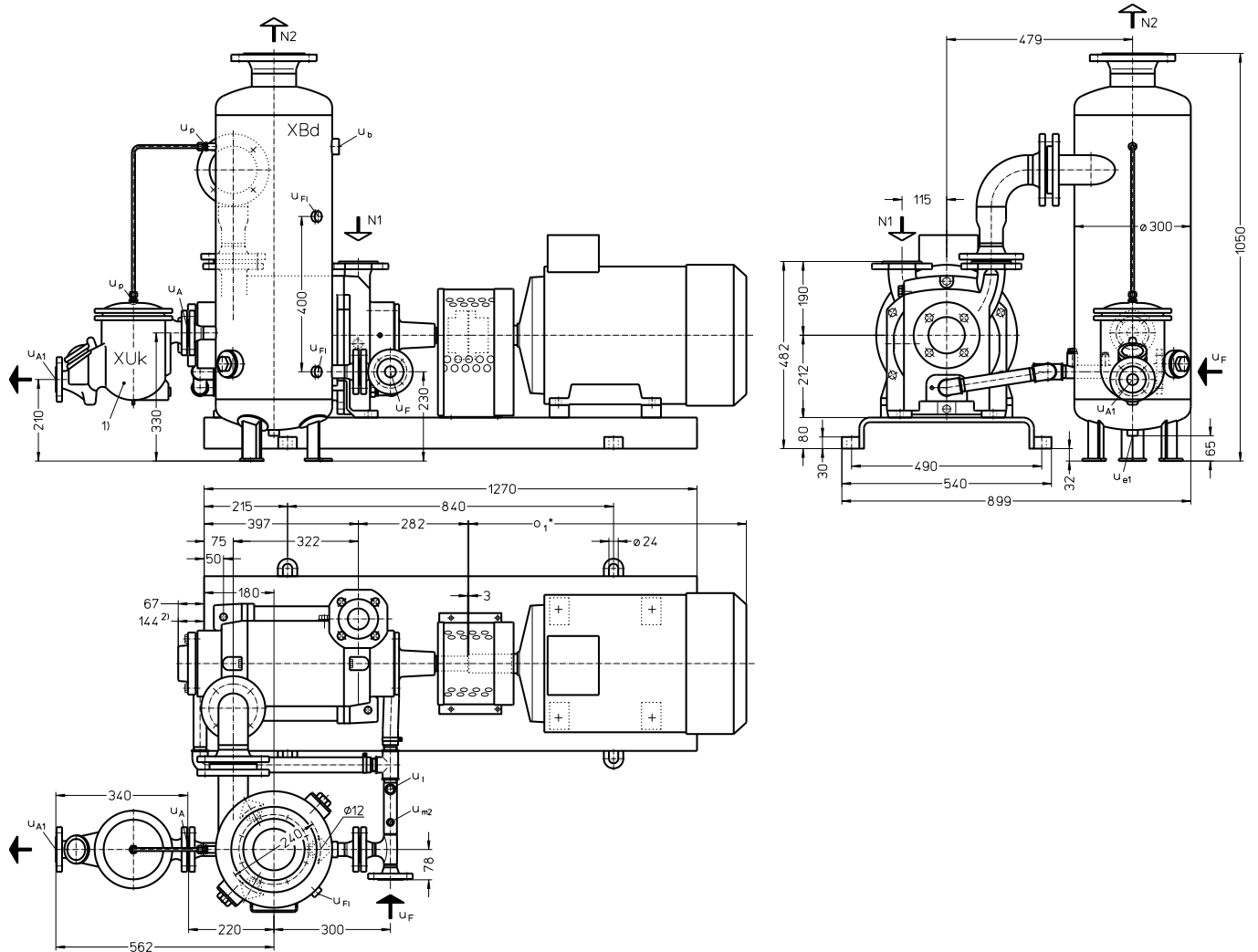


- N 1 = Gas inlet DN 65 (according to DIN EN 1092 PN 10, 4 bolt)  
 Gas inlet 2 1/2" (according to ANSI 150 lbs)
- N 2 = Gas outlet DN 65 (according to DIN EN 1092 PN 10, 4 bolt)  
 Gas outlet 2 1/2" (according to ANSI 150 lbs)
- $u_B$  = Connection for service liquid G 1
- $u_e$  = Connection for drain G 1/2
- $u_{se}$  = Connection for dirt drain G 1/2
- $u_L$  = Connection for air cock G 3/4
- $u_m$  = Connection for pressure gauge G 3/8 (grey cast iron)  
 Connection for pressure gauge G 3/4 (stainless steel)
- $u_{m1}$  = Connection for drainage valve or liquid level sensor G 3/8 (grey cast iron)  
 Connection for drainage valve or liquid level sensor G 3/4 (stainless steel)

	Execution	a [mm]	f <sub>1</sub> [mm]	g [mm]	m <sub>1</sub> [mm]	m <sub>2</sub> [mm]	o <sub>3</sub> [mm]	approx. weight [kg]
LPH 60527	Mechanical seal	416	134	456	556	496	902	180
	Gland packing		223				991	

# SIHI LPH-X

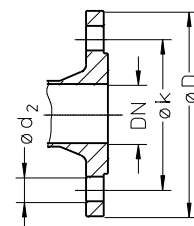
## Arrangement Drawing LPH 50523 with Pressure Liquid Separator



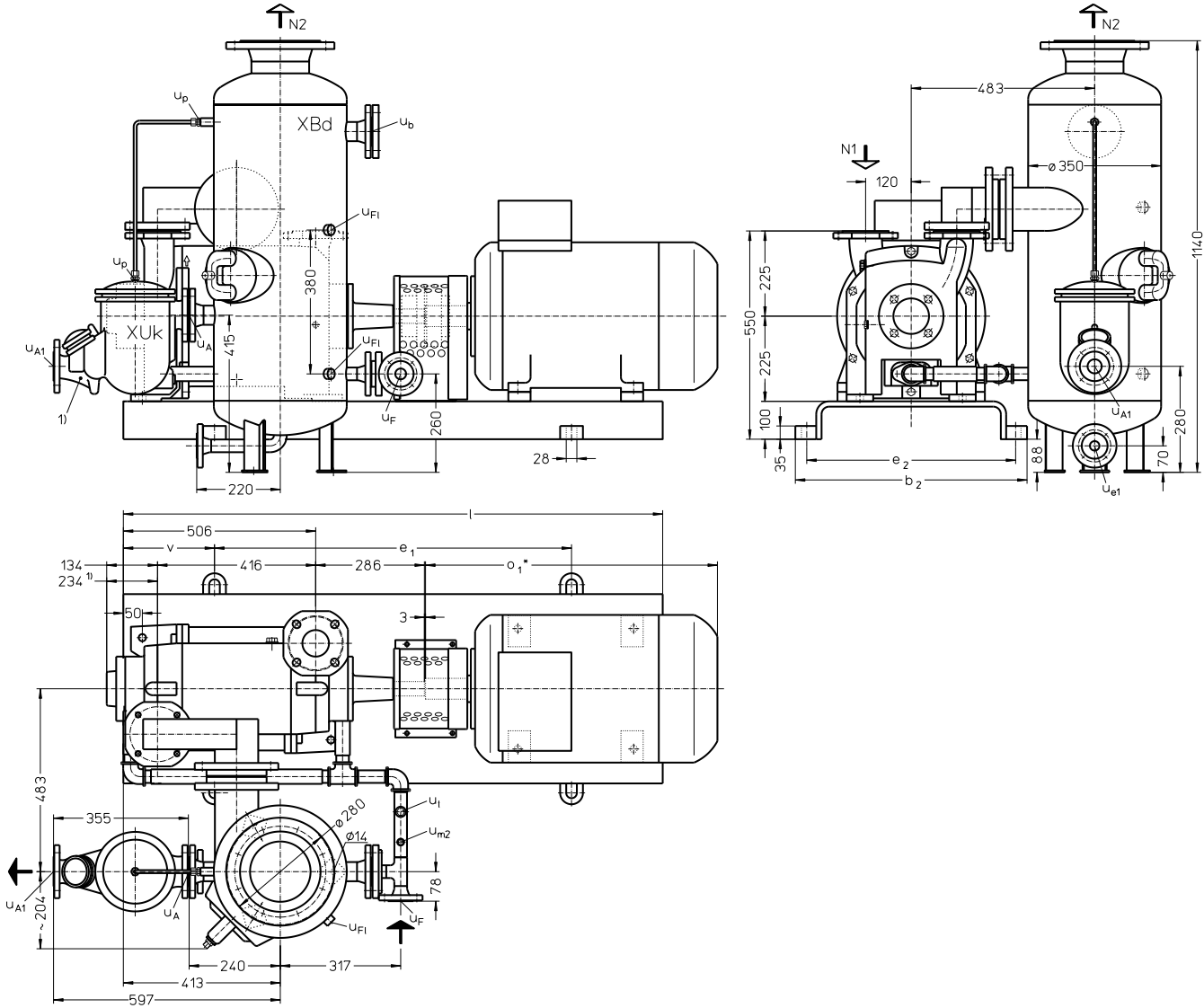
- 1) = support required
- 2) = at execution with gland packing

- N 1 = Gas inlet DN 50
- N 2 = Gas outlet DN 100
- u<sub>F</sub> = Connection for make-up liquid DN 25
- u<sub>A</sub> = Liquid discharge DN 25
- u<sub>A1</sub> = Liquid discharge DN 25
- u<sub>e1</sub> = Connection for drain G ½
- u<sub>b</sub> = Connection for safety valve G 1
- u<sub>F1</sub> = Connection for liquid level indicator G ½
- u<sub>p</sub> = Connection for gas balance pipe G ¼
- u<sub>m2</sub> = Connection for pressure gauge G ¼
- u<sub>t</sub> = Connection for thermometer G ½

Flange connection dimensions according to DIN EN 1092 PN 10 [mm]			
DN	25	50	100
k	85	125	180
D	115	165	220
Number x d <sub>2</sub>	4 x 14	4 x 18	8 x 18



## Arrangement Drawing LPH 60527 with Pressure Liquid Separator



1) = support required

2) = at execution with gland packing

N 1 = Gas inlet DN 65, 4 bolt

N 2 = Gas outlet DN 150

u<sub>F</sub> = Connection for make-up liquid DN 25

u<sub>A</sub> = Liquid discharge DN 32

u<sub>A1</sub> = Liquid discharge DN 32

u<sub>e1</sub> = Connection for drain DN 25

u<sub>b</sub> = Connection for safety valve DN 32

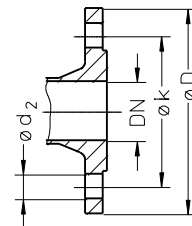
u<sub>FI</sub> = Connection for liquid level indicator G ½

u<sub>p</sub> = Connection for gas balance pipe G ¼

u<sub>m2</sub> = Connection for pressure gauge G ¼

u<sub>t</sub> = Connection for thermometer G ½

Flange connection dimensions according to DIN EN 1092 PN 10 [mm]				
DN	25	32	65	150
k	85	100	145	240
D	115	140	185	285
Number x d <sub>2</sub>	4 x 14	4 x 18	4 x 18	8 x 22





# SIHI LPH-X

## Dimensions on Arrangement Drawing LPH 50523, LPH 60527

Type	E-Motor 50 Hz			Base-plate	b <sub>2</sub> [mm]	e <sub>1</sub> [mm]	e <sub>2</sub> [mm]	l [mm]	v [mm]	o <sub>1</sub> * [mm]	3) approx. [kg]	4) approx. [kg]
	Size	IP 55	kW EEx e II T3									
LPH 50523	180 M	18.5	-	S436	-	-	-	-	-	-	712	421
	180 L	-	17.5								715	485
	180 L	22.0	-								712	432
	200 L	-	24.0								772	590
LPH 60527	200 L	30.0	-	S487	610	940	550	1420	240	769	548	
	225 S	-	30.0	S538	660	1060	600	1620	280	839	716	
	225 S	37.0	-							806	624	
	225 M	-	36.0							839	749	

\* Dimensions depend upon motor supplier

3) = Weight for Compressor + Motor + Coupling + Coupling Guard + Baseplate

4) = as 3) + Pressure Separator + Pressure Line + Liquid Drain

## Make-up Liquid in [m<sup>3</sup>/h] dependent on Compression Pressure, Speed, Method of Operation and Temperature Difference

Type	Speed [1/min]	Compression Pressure in [bar]																			
		0.4					0.8					1.2					1.5				
		KB				FB	KB				FB	KB				FB	KB				FB
		Temperature Difference [°C]					Temperature Difference [°C]					Temperature Difference [°C]					Temperature Difference [°C]				
30	20	10	5	30	20	10	5	30	20	10	5	30	20	10	5	30	20	10	5		
LPH 50523	1450	0.35	0.49	0.81	1.20	2.34	0.43	0.61	1.05	1.63	3.60	0.53	0.74	1.27	1.96	4.32	0.54	0.77	1.33	2.10	4.92
	1750	0.45	0.61	0.97	1.36	2.28	0.58	0.80	1.30	1.88	3.42	0.67	0.93	1.52	2.23	4.20	0.70	0.98	1.63	2.42	4.74
LPH 60527	1450	0.42	0.57	0.89	1.24	2.04	0.57	0.79	1.27	1.81	3.18	0.66	0.92	1.51	2.22	4.20					
	1750																				

FB = Operation with make-up water

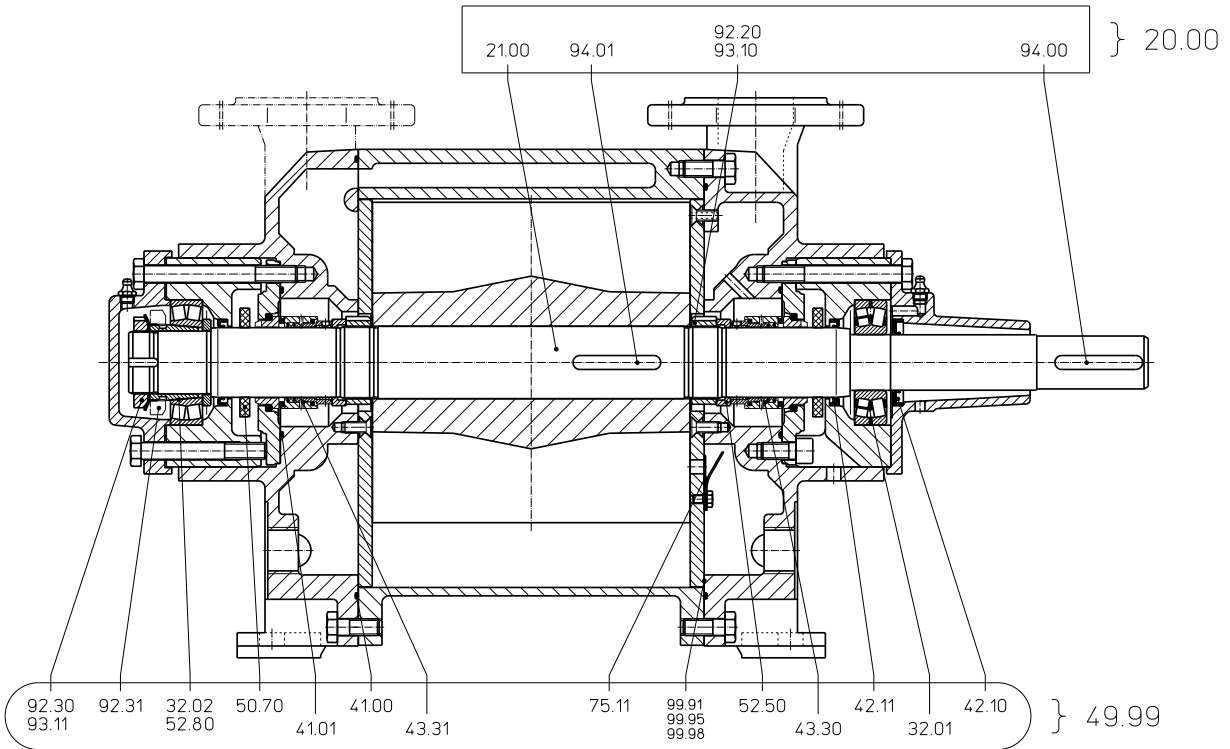
KB = Combined make-up water with service liquid 30 °C, 20 °C, 10 °C, 5 °C warmer than make-up water.

## Size Details - Ordering Information

Range + Size	Hydraulic + Bearings	Shaft Seal	Materials	Casing Sealing
	<ul style="list-style-type: none"> <li>•A 1. Hydraulic</li> <li>•B Two greased roller bearings</li> </ul>	<ul style="list-style-type: none"> <li>041 Gland packing</li> <li>AGE Mechanical seal Type SIHI FK, O-Rings butadiene rubber</li> <li>AG1 Mechanical seal Type SIHI FK, O-Rings Viton</li> </ul>	<ul style="list-style-type: none"> <li>0K Main parts out of cast iron, impeller in low alloyed steel</li> <li>0B Main parts out of cast iron, impeller in steel</li> <li>4B Main parts out of stainless steel</li> </ul>	1 O-Ring Sealing
LPH 50523	AB	041, AGE AG1	0K 4B	1
LPH 60527	AB	041, AGE AG1	0B 4B	1

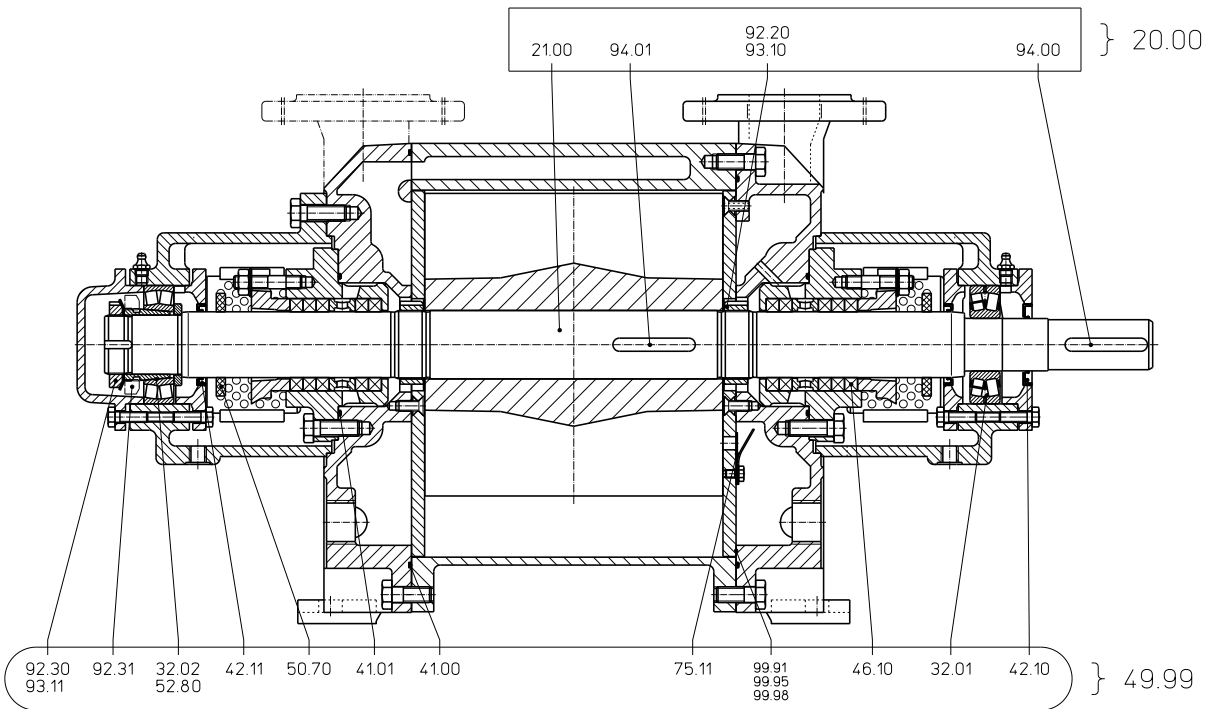
other executions on request

## Spare Parts Kits – Order Numbers



Material 0K and 0B resp.			
Group	Spare Parts Kit	LPH 50523	LPH 60527
20.00	Shaft	65 007 894	65 007 893
49.99	Basic Repair AGE	65 007 895	65 007 772

Material 4B			
Group	Spare Parts Kit	LPH 50523	LPH 60527
20.00	Shaft	65 007 912	65 007 898
49.99	Basic Repair AG1	65 007 913	65 007 886



Material 0K and 0B resp.			
Group	Spare Parts Kit	LPH 50523	LPH 60527
20.00	Shaft	65 007 933	65 007 899
49.99	Basic Repair 041	65 007 934	65 007 897

## Accessories

Recommended Accessories	Material		LPH 50523		LPH 60527	
<b>Pressure Liquid Separator</b>		Type / Weight	XBd 0610 / 43 kg		XBd 0913 / 60 kg	
Separator	Steel, galvanised 1.4571	SIHI-Part No.	on request on request		on request on request	
Service liquid line	Steel 1.4571	SIHI-Part No.	on request on request		on request on request	
Pressure pipe (elbow)	1.0254 1.4571	SIHI-Part No.	35 003 207 35 003 208		20 067 261 on request	
Liquid level indicator	Brass / Perspex 1.4571 / Perspex	SIHI-Part No.	on request 43 040 384		43 014 920 43 040 384	
<b>Liquid Drain</b>		Type / Weight	XUk 2602 / 18 kg		XUk 3302 / 25 kg	
Service liquid drain	0.6020+1.4541	SIHI-Part No.	43 014 800		43 014 805	
Gas balance line	Steel 1.4571	SIHI-Part No.	20 047 529 on request		on request on request	
<b>Flange Adapter</b>	Steel 1.4571	SIHI-Part No.	on request on request		20 067 260 on request	
<b>Drain Valve</b>	Steel  1.4571	Type / Weight SIHI-Part No.	XCg 015 / 1.2 kg 43 014 545 XCg 015 / 1.5 kg 43 014 547		XCg 010 / 1.4 kg 43 014 541 XCg 015 / 1.5 kg 43 014 547	
Double nipple	Steel, galvanised 1.4571	SIHI-Part No.	43 013 096 43 013 097		43 013 072 43 013 097	
<b>Vent Valve</b>	Brass 1.4571	SIHI-Part No.	on request 43 014 271 + 43 013 033		on request 43 014 271 + 43 013 033	
<b>Motor</b>						
Motor standard execution IP 55		Size Power Weight	180 M 18,5 kW 113 kg	180 L 22 kW 123 kg	200 L 30 kW 157 kg	225 S 37 kW 206 kg
Coupling for motor IP 55		Type / Weight	B 125 / 6.2 kg	B 140 / 6.9 kg	B 140 / 6.9 kg	B 160 / 9.4 kg
Pump side		SIHI-Part No.	43 021 460	43 021 474	43 021 474	43 025 899
Motor side, incl. flexible elements			43 021 462	43 021 478	43 021 477	43 021 488
Coupling guard	Steel	SIHI-Part No.	43 042 304		43 042 304	43 042 306
Motor in EEx e II T3 execution		Size Power Weight	180 L 17,5 kW 177 kg	200 L 24 kW 280 kg	225 S 30 kW 300 kg	225 M 36 kW 330 kg
Coupling for motor EEx e II T3		Type / Weight	BDS 135 / 6.6 kg	BDS 152 / 8.6 kg	BDS 152 / 8.6 kg	BDS 172 / 11.5 kg
Pump side		SIHI-Part No.	43 111 062	43 111 047	43 111 047	43 038 621
Motor side, incl. flexible elements			43 090 912	43 111 068	43 108 655	43 038 599
Coupling guard	Brass	SIHI-Part No.	43 042 305		43 042 307	
<b>Baseplate</b>	Steel	Type / Weight SIHI-Part No.	S 436 / 70 kg 43 040 641		S 487 / 105 kg 43 040 642	
for motor size 225 S/M	Steel	Type / Weight SIHI-Part No.			S 538 / 129 kg 43 040 643	

Designs subject to change without prior notice

