

LEH 3600, LEH 4400

Pressure range: 33 to 1013 mbar
Suction volume flow: 1100 to 5150 m³/h

CONSTRUCTION TYPE

SIHI liquid ring vacuum pumps are displacement pumps of uncomplicated and robust construction with the following particular features:

- non-polluting due to nearly isothermal compression
- oil-free, as no lubrication in the working chamber
- handling of nearly all gases and vapours
- small quantities of entrained liquid can be handled
- easy maintenance and reliable operation
- low noise and nearly free from vibration
- protection against cavitation as standard
- incorporated dirt drain
- no metallic contact of the rotating parts

The SIHI liquid ring vacuum pumps are single-stage ones.



NOTE

During operation the pump must continuously be supplied with service liquid, normally water, in order to eliminate the heat resulting from the gas compression and to replenish the liquid ring, because part of the liquid is leaving the pump together with the gas. This liquid can be separated from the gas in a liquid separator (see catalogue part accessories).

It is possible to reuse the service liquid. The pumps are equipped with a device by which the contaminated service liquid can continuously be drained during operation (dirt drain), if necessary. The direction of rotation is clockwise, when looking from the drive end on the pump.

APPLICATION

Handling and exhausting of dry and humid gases; entrained liquid can be handled during normal duty. The pumps are applied in all fields where a pressure of 33 to 900 mbar must be created by robust vacuum pumps.

Fields of application are for example:

- chemistry and pharmacy for distilling and degassing.
- electric industry for impregnating and drying
- plastics industry for degassing etc.

GENERAL TECHNICAL DATA

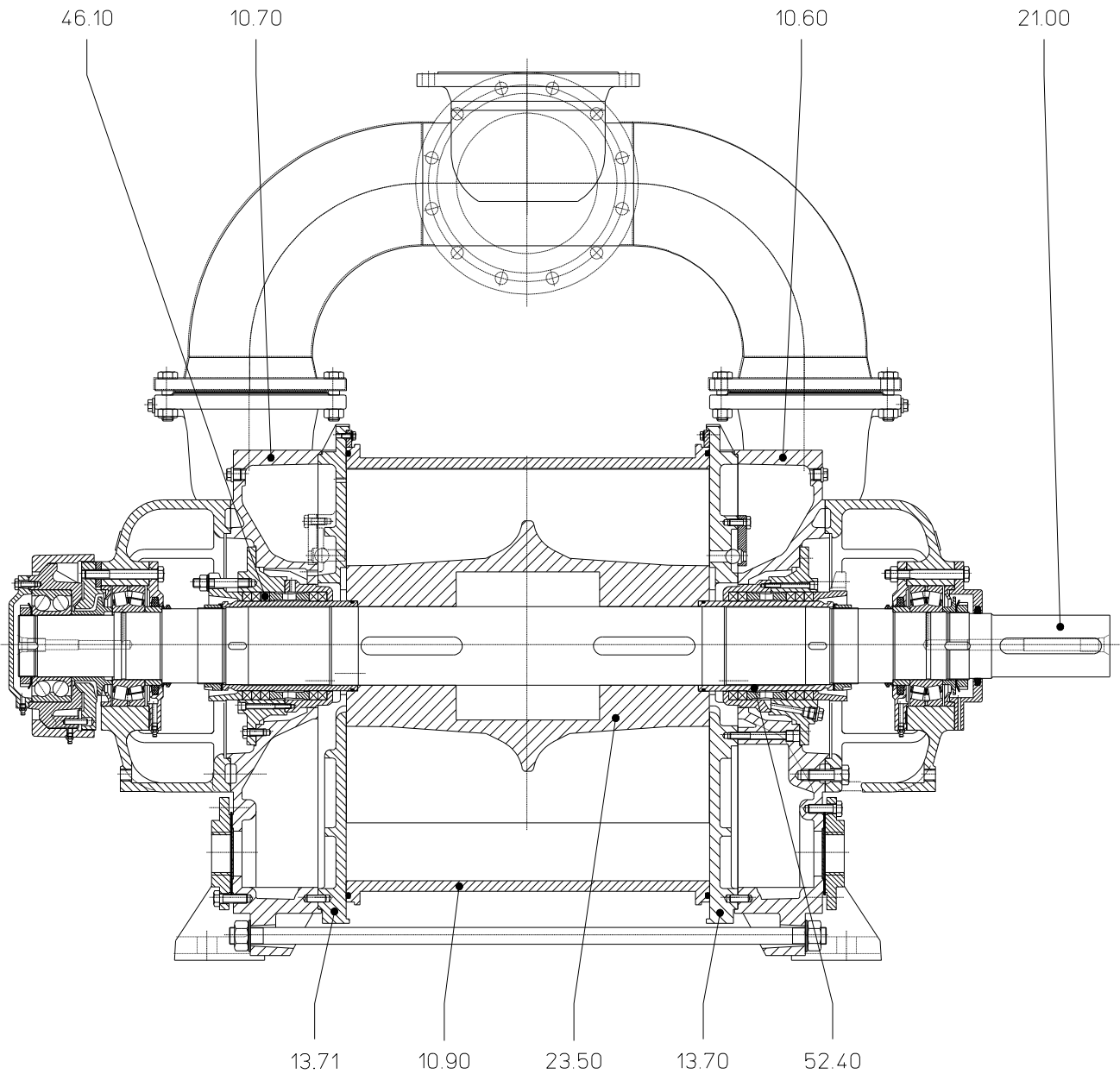
Pump type	unit	LEH 3600	LEH 4400
Speed	50 Hz 60 Hz		585 700
Max. compression over pressure	bar		1,5
Max. admissible pressure difference	bar		1,5
Hydraulic test (over pressure)	bar		3
Moment of inertial of the rotating pump parts and of the water filling	kg · m²	26,6	32,4
Sound pressure level at a suction pressure of 80 mbar	dB (A)		84
Min. pulley diameter permissible in case of V-belt drive	mm	710	800
Max. gas temperature	dry °C saturated °C		160 80
Service liquid			
max. admissible temperature	°C		60
max. viscosity	mm²/s		90
max. density	kg/m³		1200
volume up to shaft level	liter	165	193
Max. flow resistance of the heat exchanger	bar		0,2

The combination of several limiting values is not admissible.

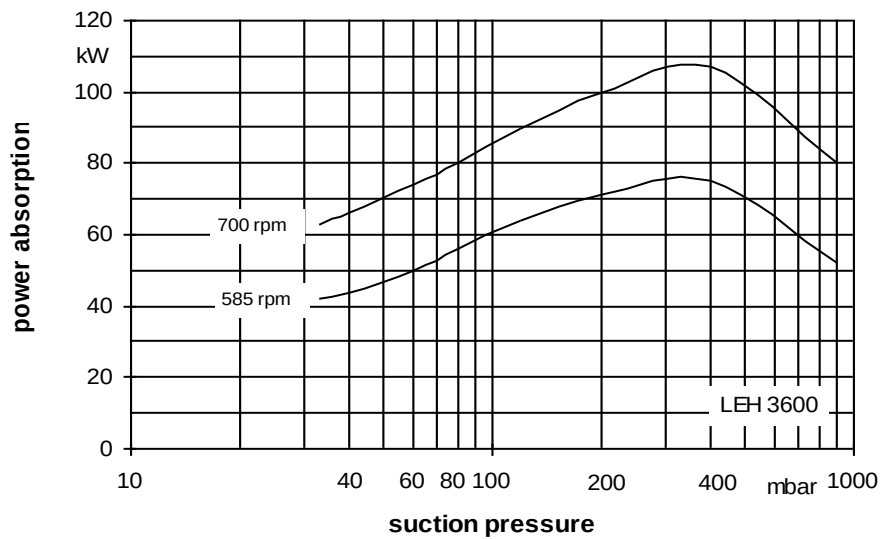
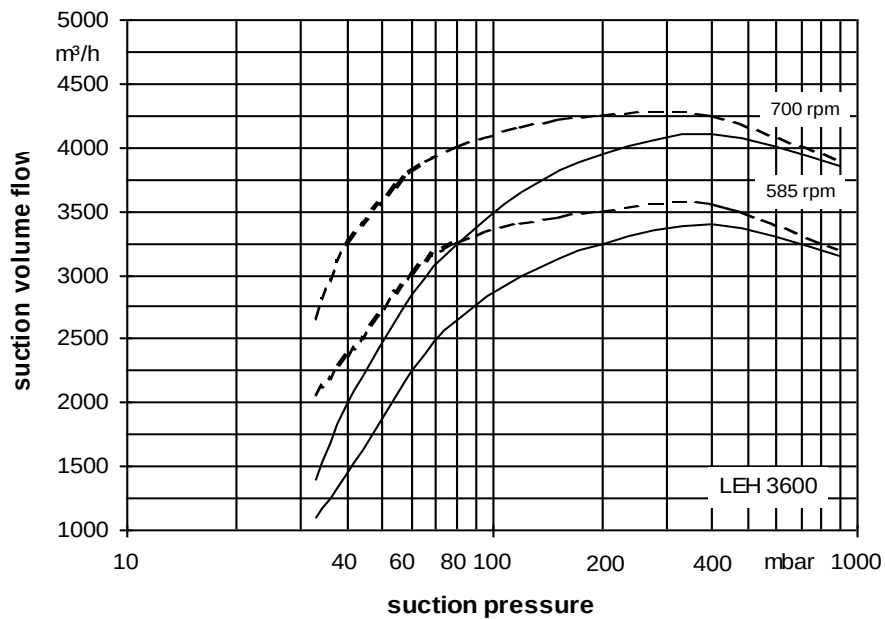
Material design

Item	COMPONENTS	MATERIAL DESIGN 0B
10.60, 10.70	Casing	0.6025
10.90	Central body	1.0038
13.70, 13.71	Guide disk	0.6025
21.00	Shaft	1.0503
23.50	Vane wheel impeller	1.0553
46.10	Gland packing	Soft packing
52.40	Shaft sleeve	1.4027.05

Sectional drawing LEH 3600, LEH 4400



Suction volume flow and power absorption LEH 3600



The operating data are valid under the following conditions:

- pumping medium:
 - dry air: 20°C
 - water vapour saturated air: 20°C
- service liquid:
 - water: 15°C

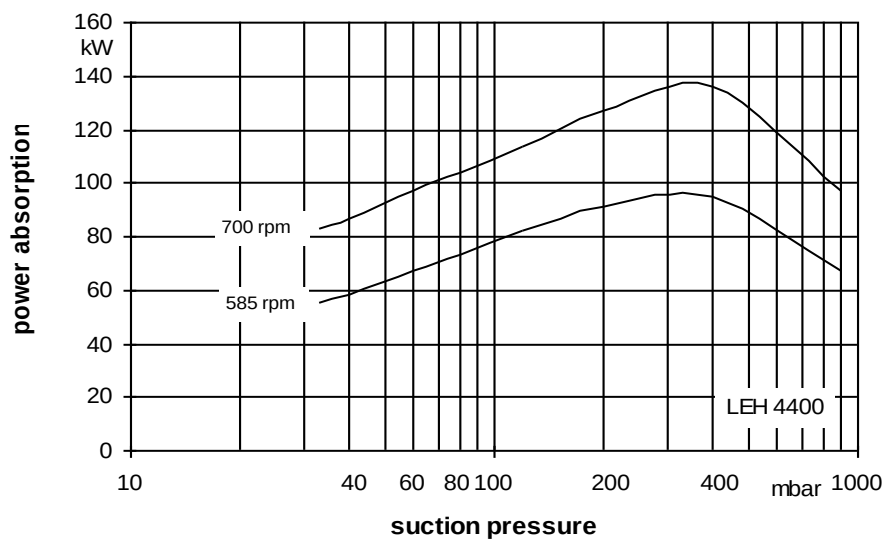
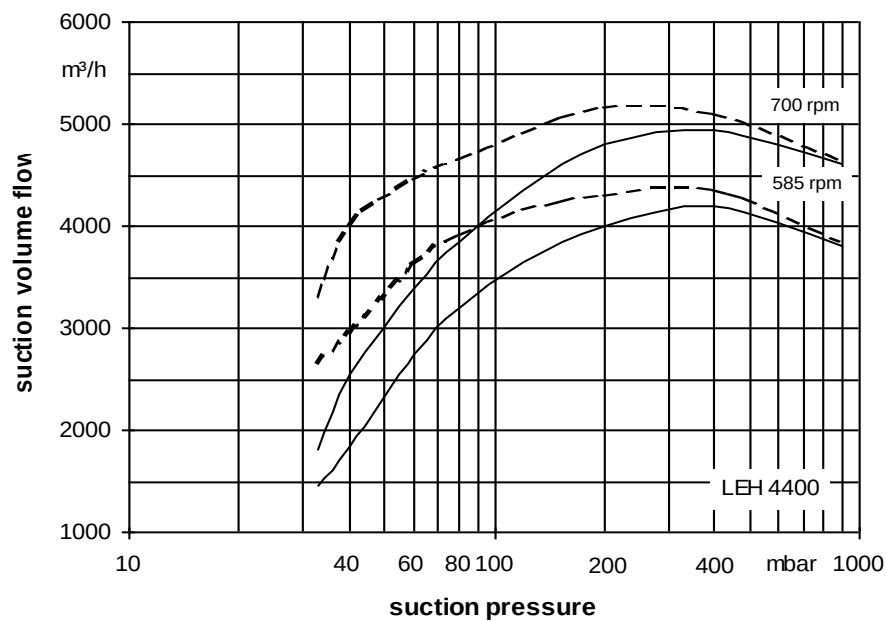
Compression pressure 1013 mbar (atmospheric pressure)

The suction volume flow is applied to the suction pressure.

Tolerance of the operating data 10% and power absorption 5%

Max. fresh water need with the lowest suction pressure

Suction volume flow and power absorption LEH 4400



The operating data are valid under the following conditions:

- pumping medium: - dry air: 20°C _____
 - water vapour saturated air: 20°C _____
- service liquid: - water: 15°C _____

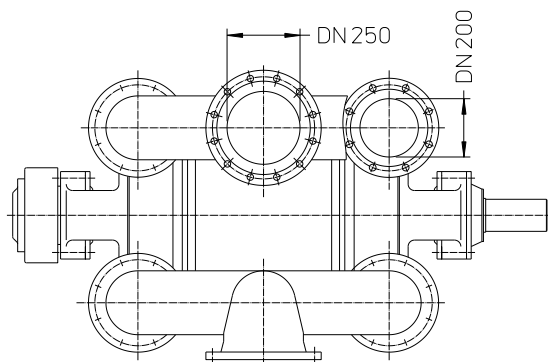
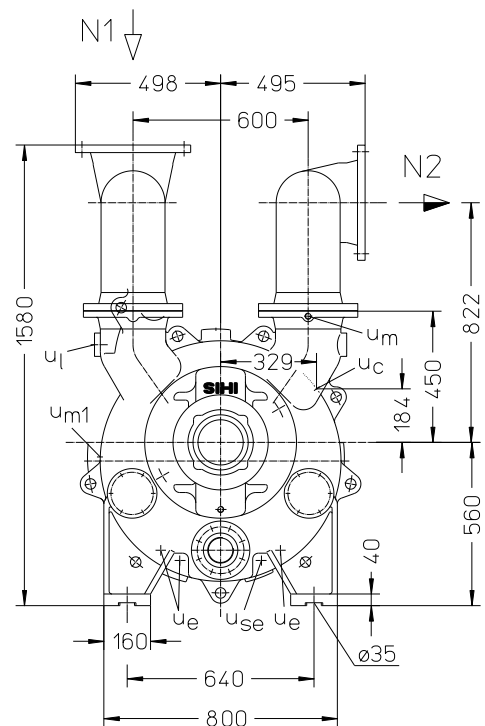
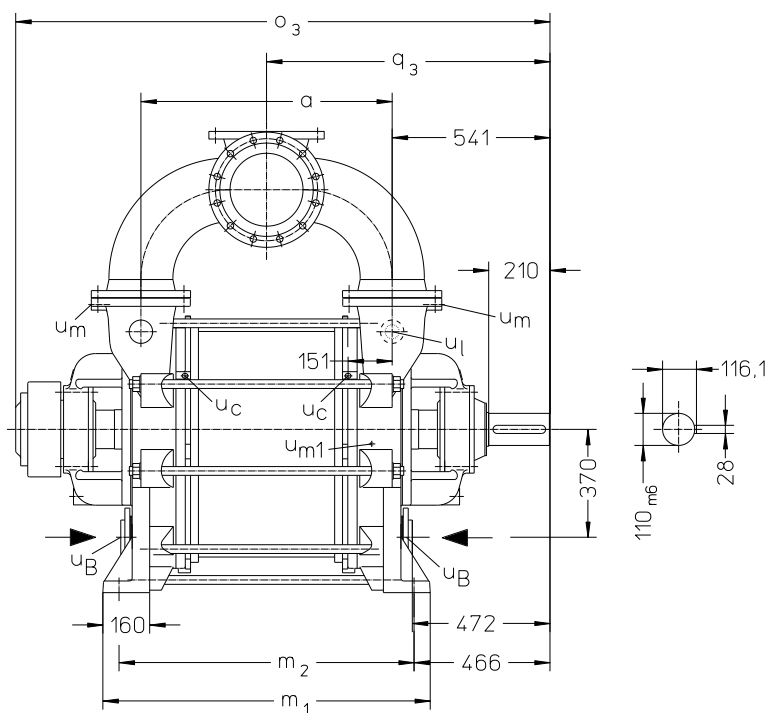
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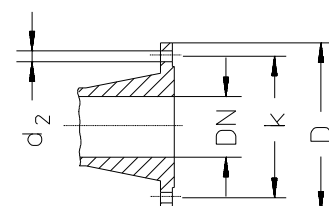
Dimension table LEH 3600, LEH 4400



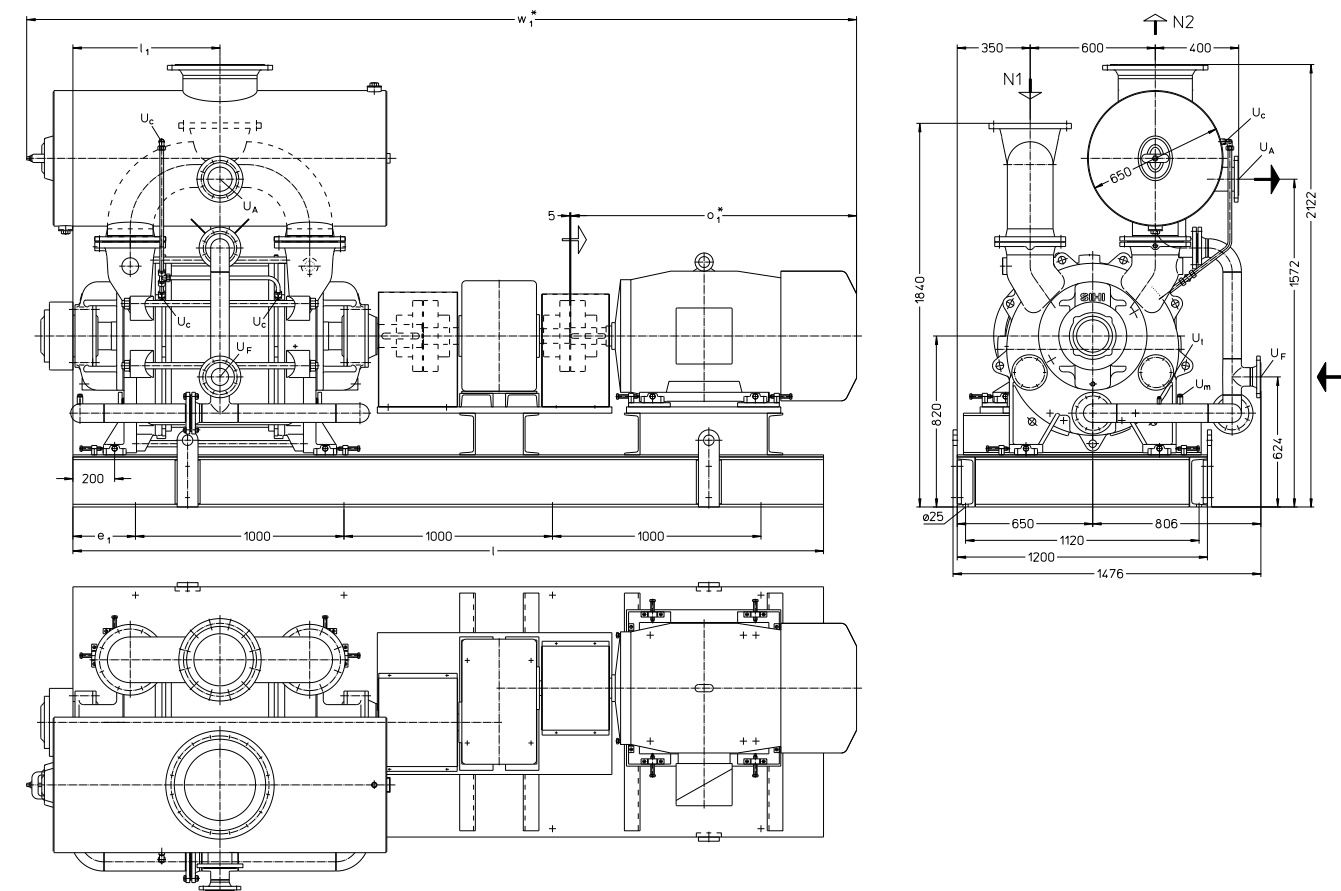
- N 1 = gas inlet DN 250
- N 2 = gas outlet DN 250
- u_B = connection for service liquid G 3
- u_c = connection for protection against cavitation G ½
- u_e = drain connection G ¾
- u_l = connection for vacuum breaker cock G 1½
- u_m = connection for pressure gauge G ½
- u_{m1} = connection for drain valve G ¾
- u_{se} = connection for dirt drain G ¾

	a	m ₁	m ₂	o ₃	q ₃	weight app.. kg
LEH 3600	861	1121	1011	1830	971	1950
LEH 4400	986	1246	1136	1955	1033	2050

flange connections to DIN 2501 PN 10		
DN	200	250
k	295	350
D	340	395
number x d ₂	8 x 23	12 x 22



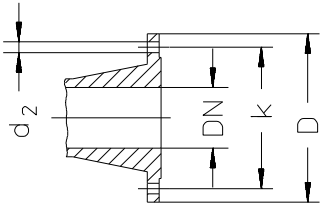
Arrangement drawing LEH 3600, LEH 4400 with overhead liquid separator



- N 1 = gas inlet DN 250
- N 2 = gas outlet DN 350
- U A = connection for liquid drain DN 100
- U c = connection for protection against cavitation G ½
- U F = connection for fresh liquid DN 80
- U m = connection for pressure gauge G ½
- U t = connection for thermometer G ¼

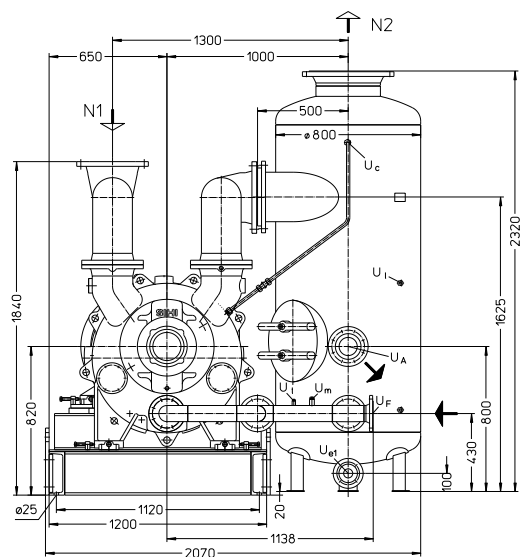
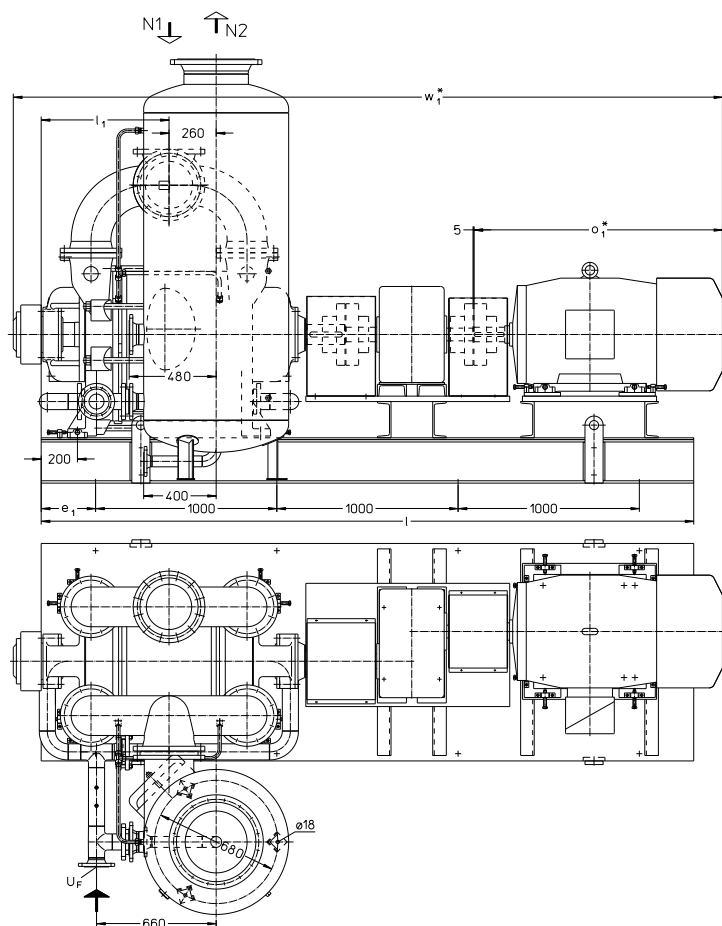
	electric motor 50 Hz		e ₁	l	l ₁	o ₁ *	w ₁ *	weight app. kg
	size	kW IP 55						
LEH 3600	315 L	90	300	3600	705	1371	3980	4980
LEH 4400	355 M	110	375	3750	768	1440	4174	5600

flange connections to DIN 2501 PN 10				
DN	80	100	250	350
k	160	180	350	460
D	200	220	395	505
number x d ₂	8 x 18	8 x 18	12 x 22	16 x 22



* dimensions dependent to the motor make

Arrangement drawing LEH 3600, LEH 4400 with upright liquid separator

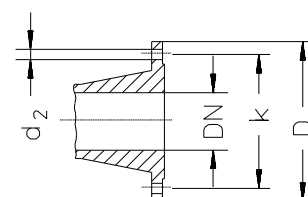


- N 1 = gas inlet DN 250
 N 2 = gas outlet DN 350
 UA = connection for liquid drain DN 100
 Uc = connection for protection against cavitation G ½
 Ue1 = drain connection DN 50
 UF = connection for fresh liquid DN 80
 Ufl = connection for liquid level indicator G ½
 Um = connection for pressure gauge G ½
 Ut = connection for thermometer G ¼

	electric motor 50 Hz							weight
	size	kW IP 55	e ₁	l	l ₁	o ₁ *	w ₁ *	app. kg
LEH 3600	315 L	90	300	3600	705	1371	3912	4990
LEH 4400	355 M	110	375	3750	768	1440	4106	5600

flange connections to DIN 2501 PN 10					
DN	50	80	100	250	350
k	125	160	180	350	460
D	165	200	220	395	505
number x d ₂	4 x 18	8 x 18	8 x 18	12 x 22	16 x 22

* dimensions dependent on the motor make



Fresh water requirements in [m³/h] dependent on suction pressure, speed, mode of operation and difference in temperature

Suction pressure in [mbar]		33				120				200				400			
pump	speed [rpm]	KB			FB	KB			FB	KB			FB	KB			FB
		difference in temperature [°C]				difference in temperature [°C]				difference in temperature [°C]				difference in temperature [°C]			
		10	5	2		10	5	2		10	5	2		10	5	2	
LEH 3600	585	3,0	5,2	9,3	19,0	4,0	6,2	9,3	14,0	4,0	6,1	8,6	12,0	3,8	5,5	7,3	9,5
	700	4,2	6,9	11,2		5,0	7,4	10,3		5,0	7,1	9,4		4,7	6,3	7,9	
LEH 4400	585	3,9	6,5	11,1	21,0	4,7	7,2	10,3	14,5	4,8	6,9	9,5	12,5	4,4	6,0	7,7	9,5
	700	5,3	8,5	13,2		5,9	8,3	11,2		5,8	8,0	10,2		5,2	6,8	8,2	

FB = fresh liquid service

KB = combined liquid service with service water 10 °C, 5 °C, 2 °C warmer than fresh water

Data regarding the pump size - order notes

series + size	hydraulics + bearings	shaft sealing	material design	casting seal
	A• hydraulic A •B two lubricated antifriction bearings	041 double gland packing	0B main parts of GG without non-ferrous metal	0 liquid seal
LEH 3600 4400	AB	041	0B	0

Design - Motor selection table

	designation	electric motor 50 Hz		
pump with free shaft end	01	motor enclosure IP 55		
pump with coupling, pre-drilled at motor side	04			
as above, but with motor, for example 110 kW three-phase motor	e.g. HD	kW	size	designation
(50 Hz, 400 VΔ) at 585 rpm		90	315 L	GD
		110	355 M	HD

Example for ordering:

The construction size LEH 4400 AB 041 0B 0 with 110 kW three-phase motor (50 Hz, 400 VΔ) 585 rpm has the complete order number:

LEH• 4400 AB 041 0B 0 HD

For motors with other voltage or frequency are required a special information should be given.

On delivery the point (•) in the fourth place of the type code is replaced by a letter in the factory.

Accessories

Recommended accessories		LEH 3600	LEH 4400
Overhead liquid separator	type	XBa 50040	
material design	weight	262 kg	
130 / galvanized	SIHI part No.	35 009 537	
172 / 1.4571		35 009 539	
service liquid line		XBa 50041	
material design	SIHI part No.	275 kg	
072 / St 37-0		35 009 983	
172 / 1.4571		35 009 984	
cavitation protection line		35 009 921	
material design	SIHI part No.	35 009 922	
072 / St 37-0		35 009 923	
172 / 1.4571		35 009 924	
		35 009 925	
		35 009 970	
		35 009 980	
		35 009 981	
Upright liquid separator	type	XBp 10013	
material design	weight	273 kg	
130 / galvanized	SIHI part No.	35 010 145	
172 / 1.4571		35 010 146	
service liquid line		35 009 680	
material design	SIHI part No.	35 009 681	
072 / St 37-0		35 009 623	
172 / 1.4571		35 006 149	
cavitation protection line		35 010 210	
material design	SIHI part No.	35 010 211	
072 / St 37-0		35 010 212	
172 / 1.4571		35 010 213	
SIHI-gas ejector		on request	
Non-return valve		on request	
Motor in case of standard design			
IP 55	size	315 L	
	power	90 kW	
	weight	1105 kg	
		355 M	
		110 kW	
		1570 kg	
Coupling			
pump side	type	ADS 340	
gearing side			
Contact safety device		on request	
Gearing	type	PIV-PB16 (i=2,8)	
Coupling			
gearing side	type	ADS 340	
pump side			
Contact safety device		on request	
Base frame			
for motor IP 55	SIHI part No.	35 014 856	
081 / RSt 37-2	weight	1260 kg	
		35 014 889	
		1300 kg	

Any changes in the interest of the technical development are reserved.

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