Liquid ring vacuum pumps
single-stage

LPH 90554, LPH 90567

Pressure range: **120 to 1013 mbar**
Suction volume flow: **1700 to 5050 m³/h**

CONSTRUCTION TYPE

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

- Handling of nearly all gases and vapours
- non-polluting due to nearly isothermal compression
- oil-free, as no lubrication in the working chamber
- small quantities of entrained liquid can be handled
- easy maintenance and reliable operation
- low noise and nearly free from vibration
- wide choice of material, therefore applicable nearly everywhere
- incorporated dirt drain
- incorporated central drain
- no metallic contact of the rotating parts

The Sterling SIHI liquid ring vacuum pumps LPH 90554 and LPH 90567 are single-stage ones. They can be applied with small modification as compressors up to a compression pressure of 1,5 bar (see catalogue part K).

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 120...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 impregnation and drying
- plastics industry for degassing etc.

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 on the pump.

GENERAL TECHNICAL DATA

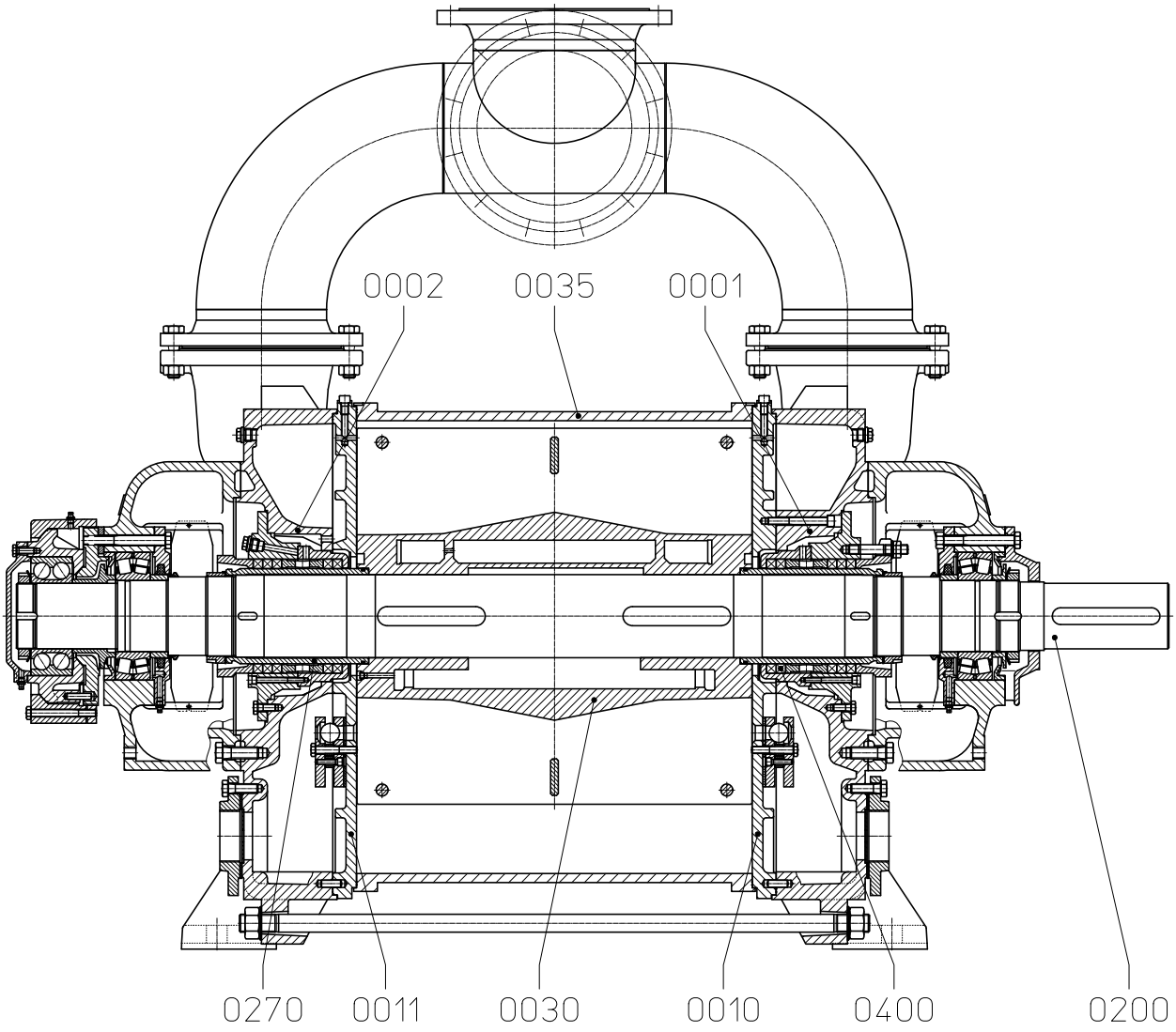
Pump type	unit	LPH 90554			LPH 90567		
Speed [1]	rpm	465	585	700	465	585	700
Max. compression over pressure	bar	1,5					
Max. admissible pressure diference	bar	1,5					
Hydraulic test (over pressure)	bar	3					
Moment of inertial of the rotating pump parts and the water filling	kg · m²	23,5			28		
Sound pressure level at a suction pressure of 200 mbar	dB (A)	83	83	84	83	83	84
Min. pulley diameter admissible in case of V-belt drive	mm	710					
Max. gas temperature dry	°C	160					
saturated	°C	80					
Service liquid							
max. admissible temperature	°C	60					
max. viscosity	mm²/s	90					
max. density	kg/m³	1200					
volume up to shaft level	liter	160			185		
Max. flow resistance of the heat exchanger	bar	0,2					

The combination of several limiting values is not admissible.
[1] Other speeds are possible, change of the gear ratio resp. V-belt drive

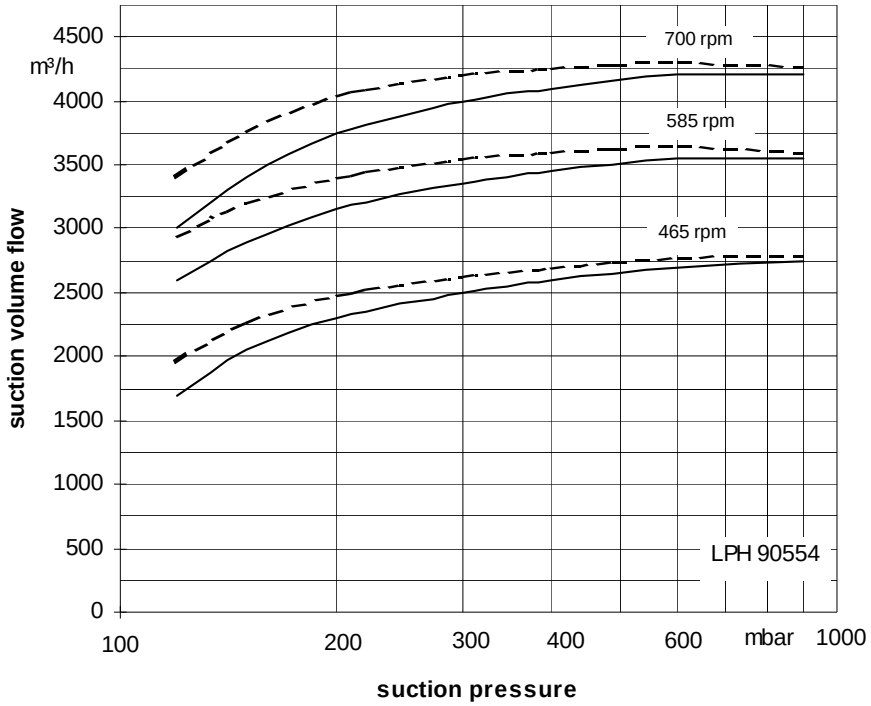
Material design

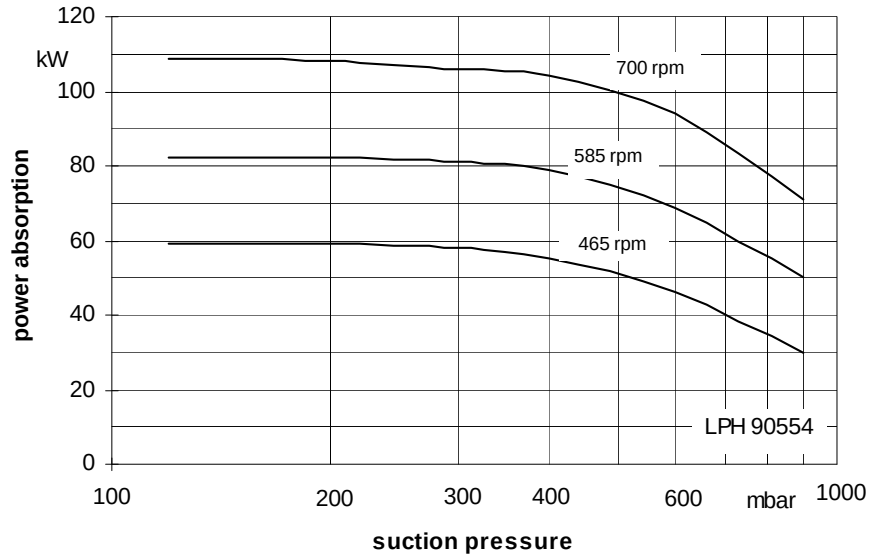
Item.	COMPONENTS	MATERIAL DESIGN 02
0001, 0002	Casing	0.6025
0010, 0011	Guide disk	0.6025
0030	Vane wheel impeller	1.0570
0035	Central body	1.0038
0200	Shaft	1.0503
0270	Shaft sleeve	1.4027.05
0400	Gland packing	GORE

Sectional drawing LPH 90554, LPH 90567



Suction volume flow and power absorption LPH 90554



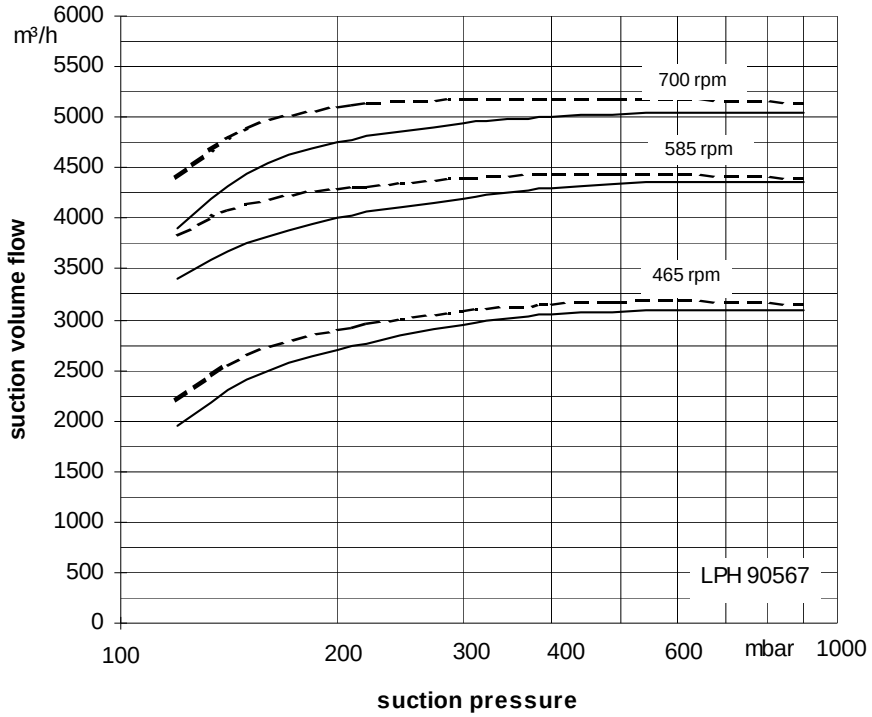


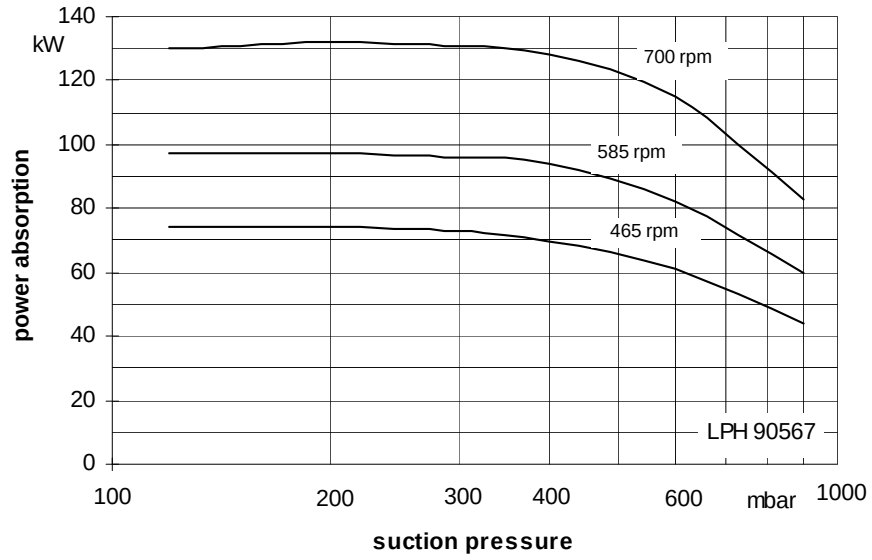
The operating data are applicable under the following conditions:

- 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 of the power absorption 5%
Max. fresh water need with the lowest suction pressure

Suction volume flow and power absorption LPH 90567





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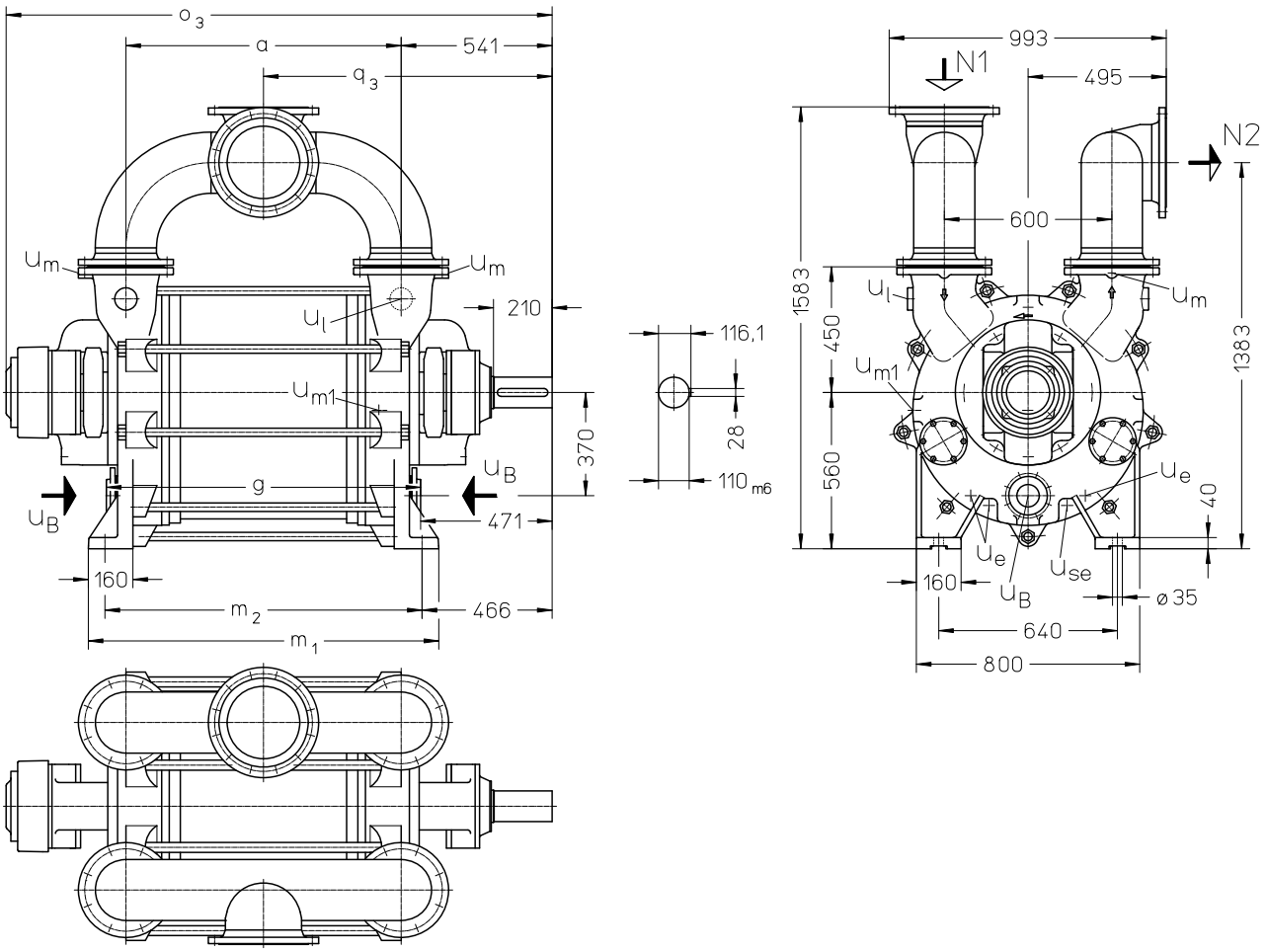
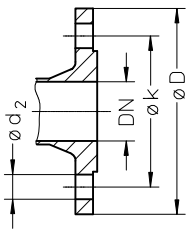
Dimension table LPH 90554, LPH 90567



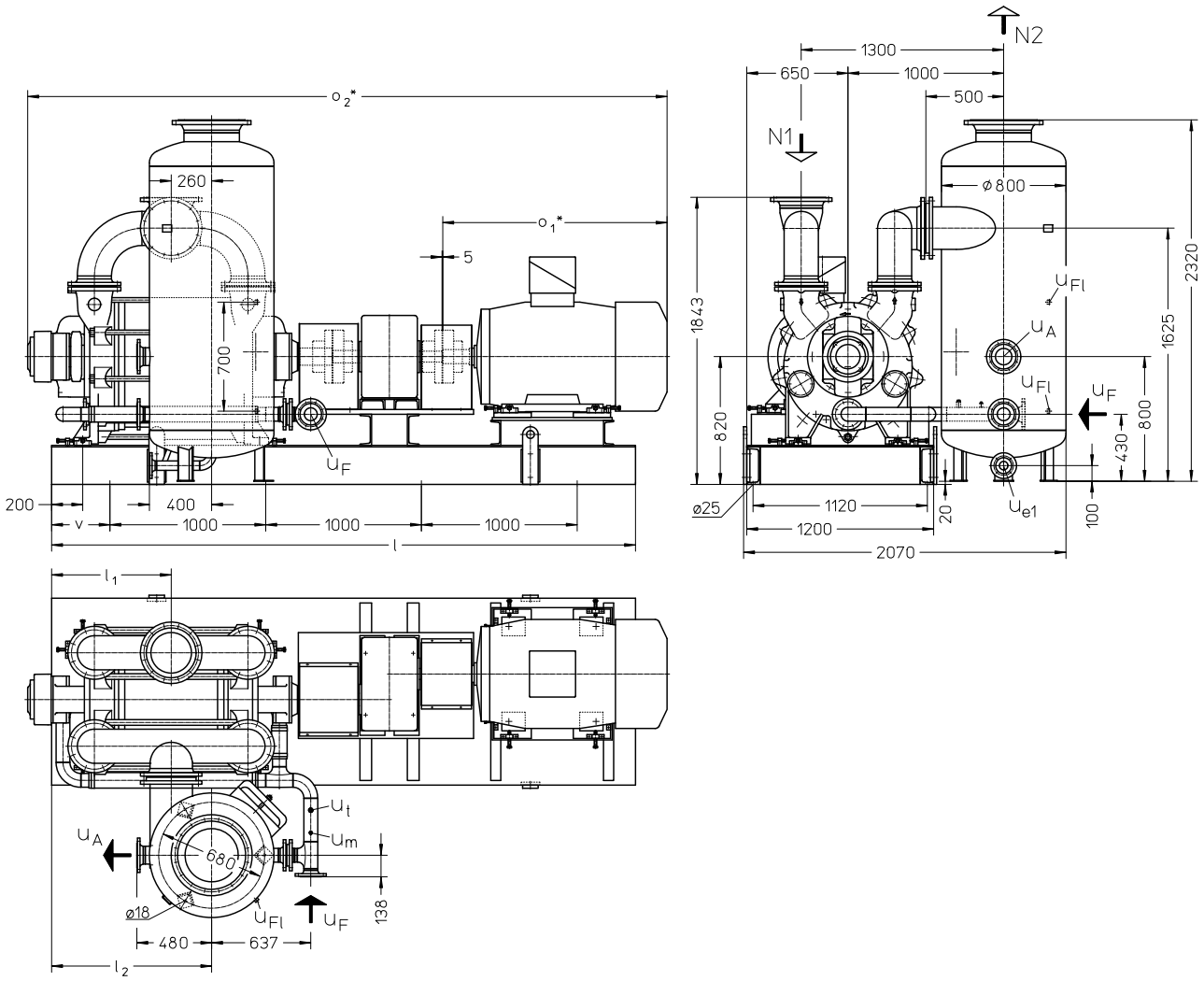
N 1 = gas inlet DN 250
N 2 = gas outlet DN 250
u_B = connection for service liquid G 3
u_e = drainage (screwed plug) G ¾
u_l = connection for vent cock G 1 ½
u_m = connection for pressure gauge G ½
u_{m1} = connection for drain valve G ¾
u_{se} = connection for dirt drain G ¾

	a	g	m_1	m_2	o_3	q_3	weight abt. kg
LPH 90554	861	1001	1130	1011	1830	971	2160
LPH 90567	986	1126	1255	1136	1955	1034	2430

flange connections to DIN 2501 PN 10	
DN	250
k	350
D	395
number x d_2	12 x 22



Arrangement drawing LPH 90554, LPH 90567 with upright liquid separator



N 1 = gas inlet DN 250

N 2 = gas outlet DN 350

u_A = connection for liquid drain DN 100

u_{e1} = drain connection DN 50

u_F = connection for fresh liquid DN 80

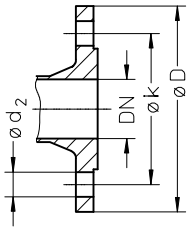
u_{Fl} = connection for liquid level indicator G ½

u_m = connection for pressure gauge G ¼

u_t = connection for thermometer G ½

	electric motor 50 Hz size	kW IP 55	l	l_1	l_2	o_1*	o_2*	v	weight abt. kg
LPH 90554	315 L	90	3600	705	966	1371	3912	300	5200
LPH 90567	355 M	110	3750	768	1028	1440	4106	375	6000

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 the suction pressure, speed, mode of operation and difference in temperature

suction pressure in [mbar]		120					400					600					900				
pump	speed [rpm]	KB difference in temperature [°C]				FB	KB difference in temperature [°C]				FB	KB difference in temperature [°C]				FB	KB difference in temperature [°C]				FB
		20	10	5	2		20	10	5	2		20	10	5	2		20	10	5	2	
LPH 90554	465	2,2	3,8	6,0	9,4	15	2,0	3,4	5,3	8,0	12	1,6	2,7	4,2	6,2	9	1,0	1,7	2,5	3,6	5
	585	2,9	4,8	7,3	10,5		2,6	4,3	6,4	8,9		2,2	3,6	5,1	6,9		1,5	2,3	3,2	4,1	
	700	3,6	5,8	8,3	11,4		3,3	5,1	7,2	9,5		2,8	4,3	5,8	7,4		1,9	2,7	3,5	4,3	
LPH 90567	465	2,7	4,5	7,1	10,6	16	2,4	4,1	6,2	9,1	13	2,1	3,4	5,1	7,2	10	1,4	2,2	3,2	4,3	5,5
	585	3,3	5,5	8,2	11,6		3,1	5,0	7,2	9,8		2,6	4,1	5,8	7,8		1,8	2,7	3,6	4,5	
	700	4,1	6,6	9,3	12,4		3,9	6,0	8,2	10,5		3,3	5,0	6,6	8,3		2,2	3,1	4,0	4,8	

FB =fresh liquid service
KB = combined liquid service 20 °C, 10 °C, 5 °C, 2 °C warmer than the fresh water.

Data regarding the size - order notes

series + size	hydraulics + bearings	shaft sealing	material design	casing seal
	B• 2 antifriction bearings •N 1 shaft end, clockwise	041 double gland packing	02 main parts of iron cast, free of non-ferrous metal	0 liquid seal
LPH 90554	BN	041	02	0
90567				

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	kW	size	designation.
as above, but with motor, for example		90	315 L	GD
110 kW three-phase motor	e.g. HD	110	355 M	HD
(50 Hz, 400 VΔ) at 585 rpm				

Example for ordering:

The construction size LPH 90567 BN 041 02 0 with 110 kW three-phase motor (50 Hz, 400 VΔ) 585 rpm, IP 55 has the complete order number: **LPH• 90567 BN 041 02 0 HD**

If 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.

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

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