

Liquid ring vacuum pumps

single-stage



LOH 20103, LOH 20107

Pressure range: 150 to 1013 mbar

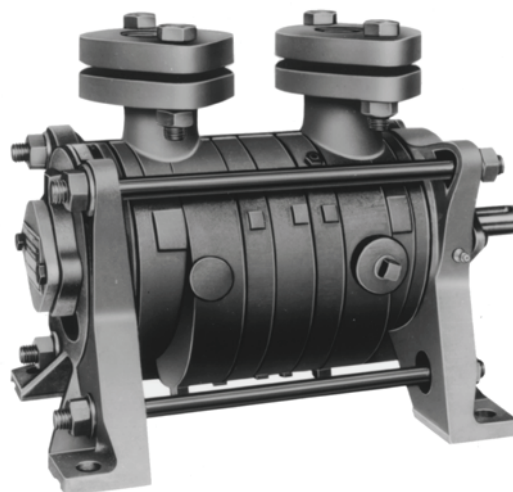
Suction volume flow: 7 to 58 m³/h

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
- Low noise and nearly free from vibration
- wide choice of material, therefore applicable nearly everywhere
- incorporated central drain
- no metallic contact of the rotating parts

The Sterling SIHI liquid ring vacuum pumps LOH 20103 and LOH 20107 are single-stage ones. They can be applied without modification as compressors up to a compression pressure of 1 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 150 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 impregnation and drying
- plastics industry for degassing etc.

NOTE

During operation the pump must be continuously supplied with service liquid, normally water, in order to eliminate the heat resulting from gas compression and in order 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).

Reuse of the service liquid is possible.

The direction of rotation of the pump is clockwise when looking from the drive on the pump.

GENERAL TECHNICAL DATA

		Unit	LOH 20103	LOH 20107
Speed	50 Hz	rpm	2800 ¹⁾	2800 ¹⁾
	60 Hz		3400	3400
Max. compression over pressure		bar	1	
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 · m ²	0,0033	0,005
Sound pressure level at a suction pressure of 200 mbar		dB (A)	66	67
Min. pulley diameter permissible in case of V-belt drive		mm	80	
Max. gas temperature	dry	°C	240	
	saturated	°C	120	
Service liquid		°C	100	
max. admissible temperature		mm ² /s	90	
max. viscosity		kg/m ³	1200	
max. density		liter	0,9	1,0
volume up to shaft level		bar	0,2	
Max. flow resistance of heat exchanger				

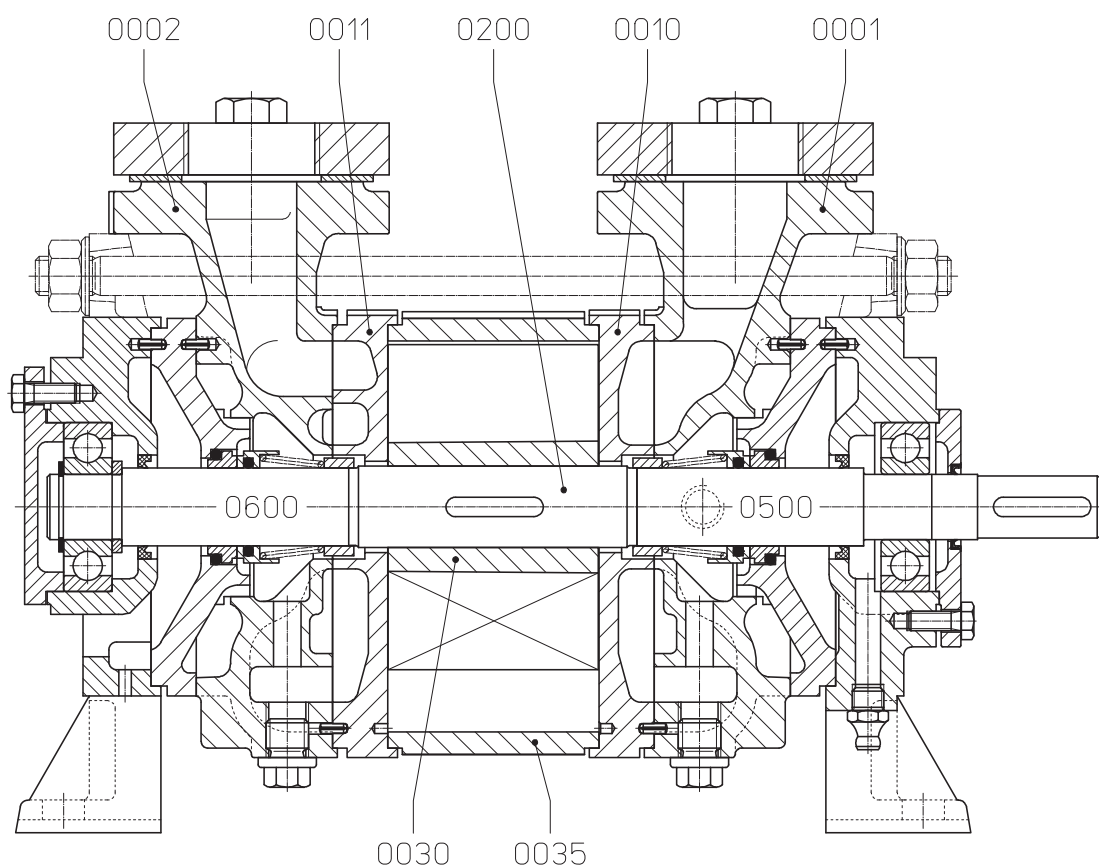
The combination of several limiting values is not admissible.

¹⁾ normal speed

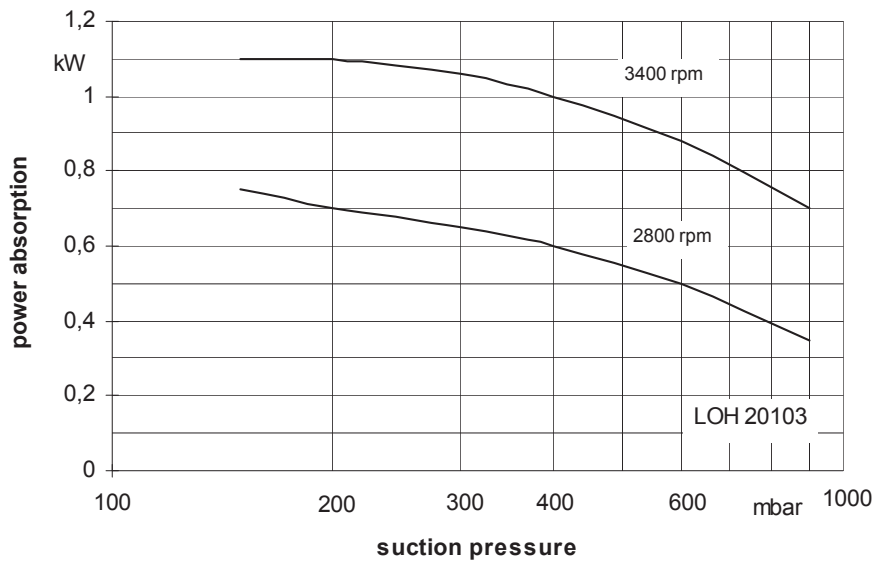
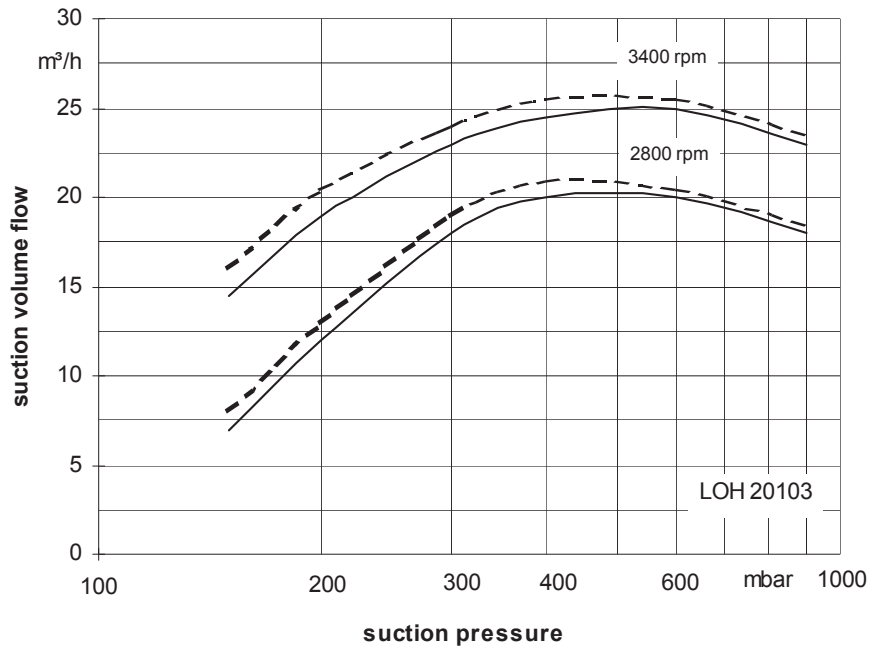
Material design

Item	COMPONENTS	MATERIAL DESIGN		
		01	02	42
0001, 0002	casing	0.6025		1.4408
0010, 0011	intermediate piece	0.6025		1.4408
0030	vane wheel impeller	RG 9	1.4027.05	1.4517
0035	central body	1.0570		1.4581
0200	shaft	1.4021		1.4401
0500, 0600	mechanical seal	Cr-steel / carbon / Perbunan		Cr Ni Mo-steel / carbon / Viton

Sectional drawing LOH 20103, LOH 20107



Suction volume flow and power absorption LOH 20103

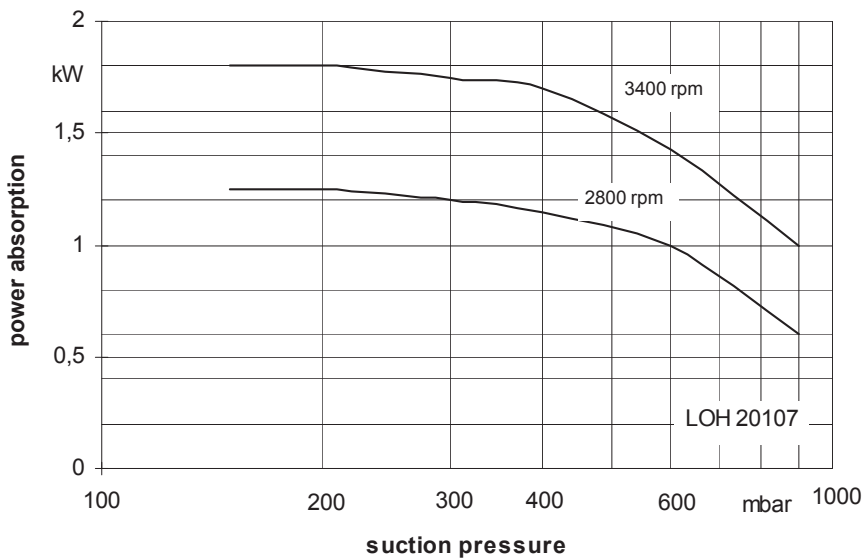
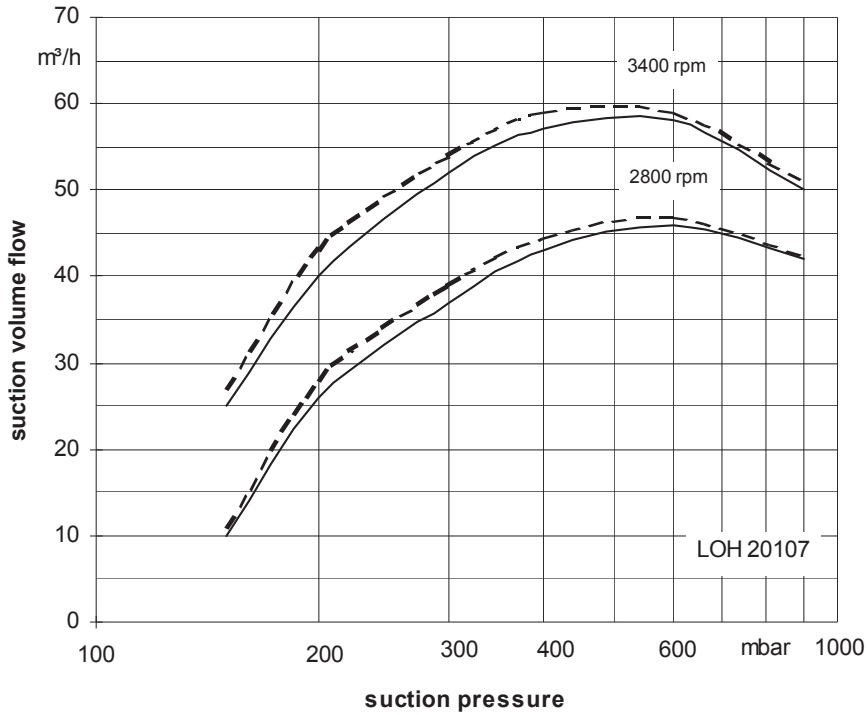


The operating data are applicable under the following conditions:

- 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 requirement at lowest suction pressure

Suction volume flow and power absorption LOH 20107

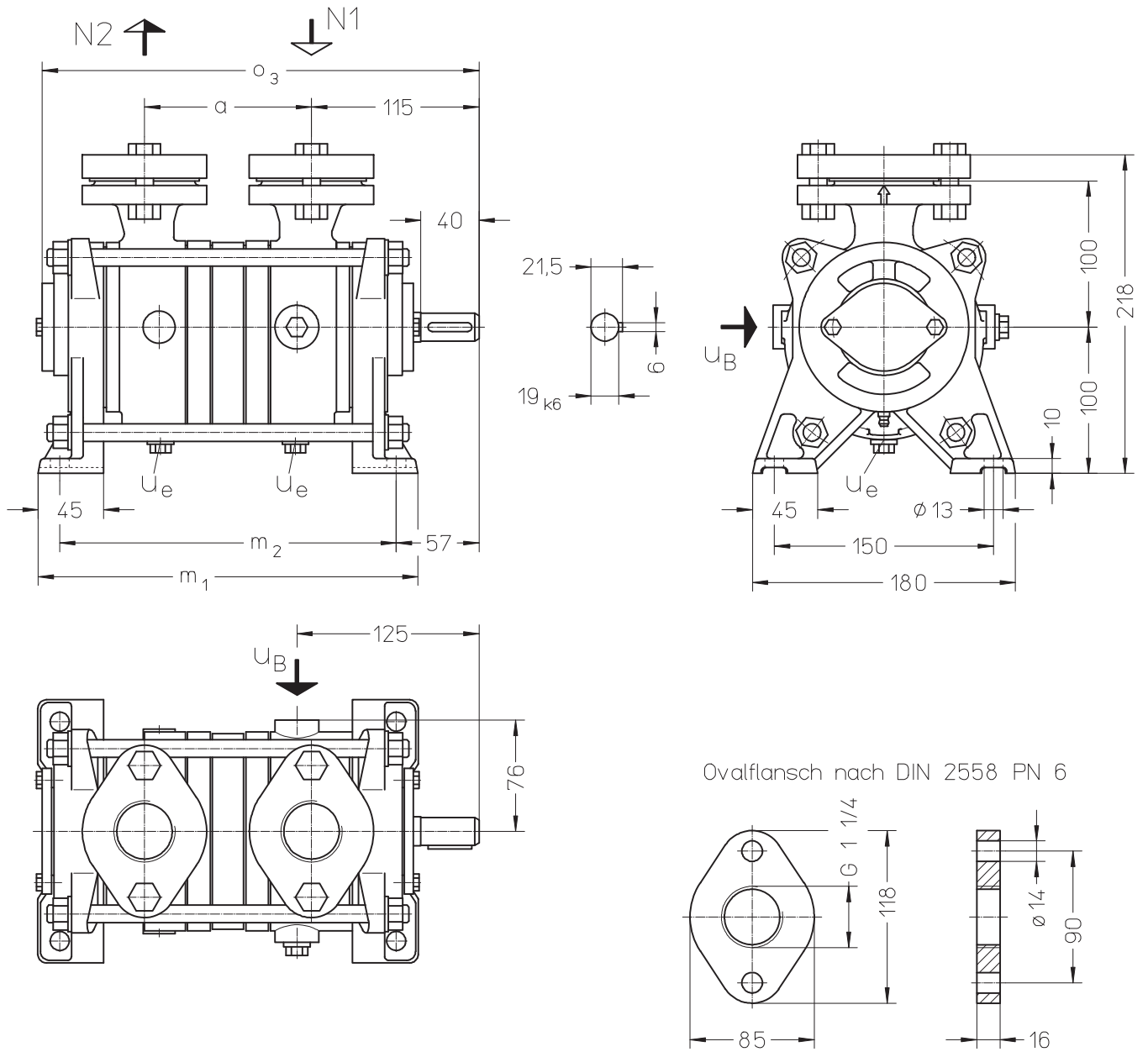


The operating data are applicable under the following conditions:

- 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 requirement at lowest suction pressure.

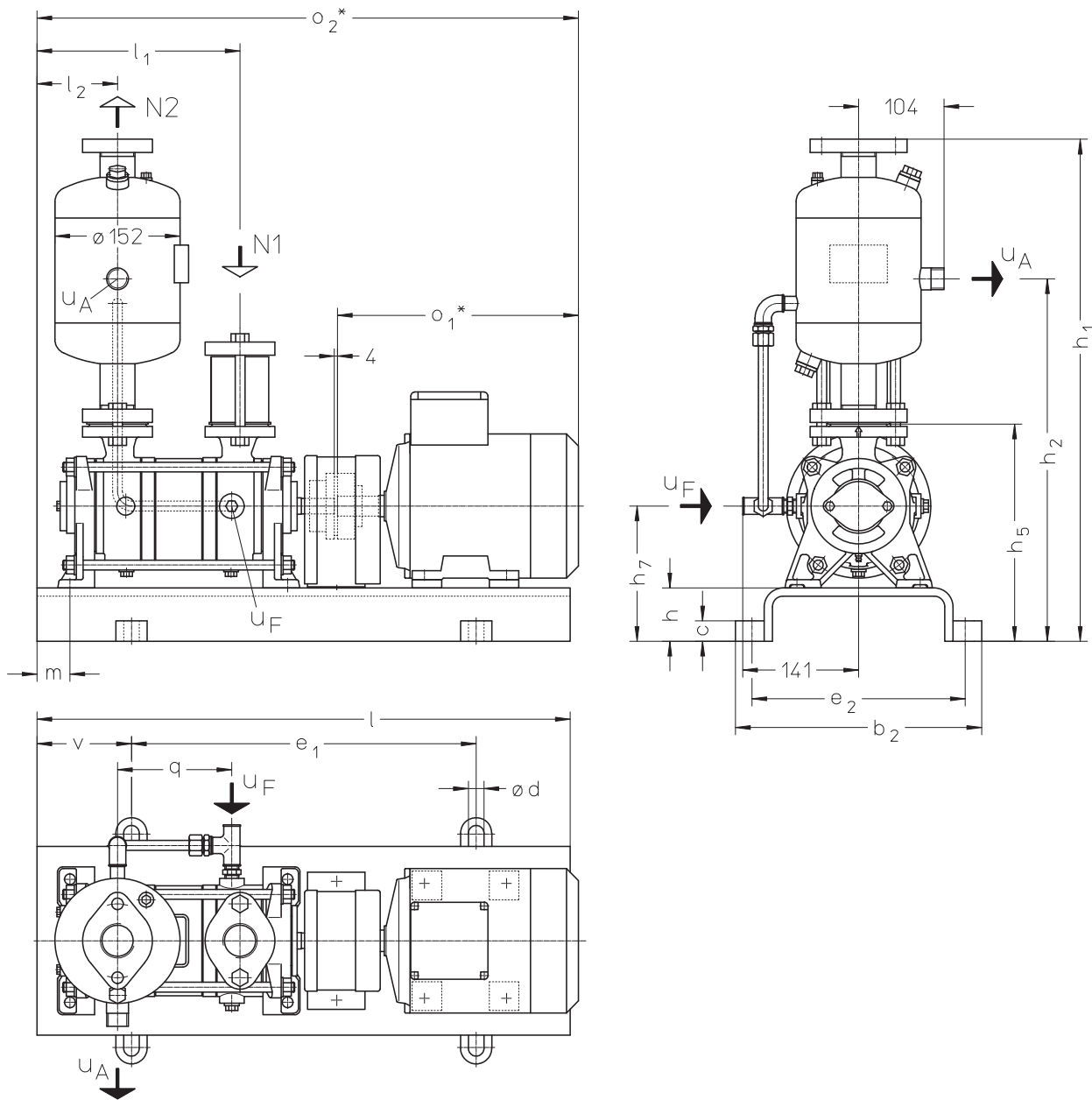
Dimension table LOH 20103, LOH 20107



	a	m ₁	m ₂	o ₃	weight abt. kg
LOH 20103	114	260	230	299	20
LOH 20107	149	295	265	334	21

- N 1 = gas inlet G 1/4
- N 2 = gas outlet G 1/4
- u_B = connection for service liquid G 3/8
- u_e = drain connection G 1/4

Arrangement drawing LOH 20103, LOH 20107 with overhead liquid separator



- N 1 = gas inlet G 1¼
- N 2 = gas outlet G 1¼
- U_A = connection for liquid drain G ¾
- U_F = connection for fresh liquid G ¾

	electric motor 50 Hz		b ₂	c	d	e ₁	e ₂	h	h ₁	h ₂	h ₅	h ₇	l	l ₁	l ₂	m	o ₁ *	o ₂ *	q	v	weight abt. kg
	size	kW																			
LOH 20103	80a	0,75	317	20	15	350	285	35	612	412	235	135	570	212	98	40	274	605	104	110	45
	80b	1,1															-	-			
	80a	-	0,75	272	603																
	80b	-	1,1	-	-																
LOH 20107	80b	1,1	300	25	19	420	260	65	582	442	265	165	650	267	118	60	274	660	139	115	58
	80b	-												1,1	272	658	-	-			
	90S	1,5	-	332	698	-	-														
	90S	-	1,5	294	660	247	98	40	294	660	-	-									
	90L	-	2	319	685	-	-	-	-	-	-	-	-	-	-	-	-	-	-	63	

* dimensions dependent on motor make

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

suction pressure mbar		150					400					600					900				
pump type	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				
		20	10	5	2		20	10	5	2		20	10	5	2		20	10	5	2	
LOH 20103	2800	0,03	0,05	0,09	0,16	0,3	0,02	0,04	0,07	0,13	0,27	0,02	0,04	0,06	0,11	0,21	0,01	0,02	0,04	0,06	0,1
	3400	0,04	0,07	0,12	0,18		0,04	0,07	0,11	0,17		0,03	0,06	0,09	0,14		0,02	0,04	0,05	0,08	
LOH 20107	2800	0,05	0,08	0,13	0,21	0,35	0,04	0,07	0,11	0,17	0,27	0,04	0,06	0,09	0,14	0,21	0,02	0,03	0,05	0,07	0,1
	3400	0,06	0,11	0,16	0,24		0,06	0,09	0,14	0,20		0,05	0,08	0,11	0,16		0,03	0,05	0,06	0,08	

FB = fresh liquid service

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

Data regarding the pump size - order notes

series + size	hydraulics + bearings	shaft sealing	material design	casing seal
	B• 2 antifriction bearings •N 1 shaft end, clockwise	131 mechanical seal	01 main parts grey cast iron 02 as above, without non-ferrous parts 42 Main parts of stainless steel	0 liquid seal
LOH 20103 20107	BN	131	01, 02, 42	0

Design- Motor selection table

	designation	electric motor 50 Hz					
		motor enclosure IP 55			motor enclosure EEx e II T3		
		kW	size	designation	kW	size	designation
pump with free shaft end	01						
pump with coupling pre-drilled at motor side	04						
as above but with motor for example 1,1 kW three-phase motor (50 Hz, 230 VΔ) with 2800 rpm	e.g. GA	0,75	80 A	FA	0,75	80 A	FJ
		1,1	80 B	GA	1,1	80 B	GJ
		1,5	90 S	HA	1,5	90 S	HJ
					2	90 L	JJ

Example for ordering:

The construction size LOH 20103 BN 131 02 0 with 1,1 kW three-phase ac motor (50 Hz, 230 VΔ) 2800 rpm has the complete order number.:

LOH• 20103 BN 131 02 0 GA

If motors with the 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		LOH 20103	LOH 20107
Overhead liquid separator material design 130 / steel galvanized 172 / 1.4571 service liquid line material design 072 / St 37-0 172 / 1.4571	type weight SIHI part No.	XBa 342 5 kg 35 000 377 35 000 378	
	SIHI part No.	20 054 559 20 054 560	
Non-return valve material design 767 / GG-25+Perbunan 784 / 1.4408+Teflon	type/weight SIHI part No.	XCk 32 / 1,2 kg resp. 3,1 kg 20 072 744 20 029 488	
Motor in case of standard design IP 55 EEx e II T3	size power weight	80 A 0,75 kW 8 kg	80 B 1,1 kW 10 kg
	size power weight	80 B 1,1 kW 10 kg	90 S 1,5 kW 13 kg
	size power weight	80 A 0,75 kW 11 kg	80 B 1,1 kW 12 kg
	size power weight	80 B 1,1 kW 12 kg	90 S 1,5 kW 14 kg
	size power weight		90 L 2 kW 16 kg
Coupling for motor IP 55 pump side motor side (for motor 80 A and 80 B) motor side (for motor 90 S)	type / weight SIHI part No.	B 80 / 1,5 kg 43 021 409 43 021 420 43 039 231	
	for motor EEx e II T3 pump side motor side (for motor 80 A and 80 B) motor side (for motor 90 S and 90 L)	type / weight SIHI part No.	BDS 88 / 2 kg 43 024 676 43 025 933 43 028 108
contact safety device material design 076 / steel 345 / 2.0321	SIHI part No.	43 042 201 43 042 202	
base frame material design 081 / RSt 37-2	type / weight SIHI part No.	S 007 / 8 kg 43 040 647	S 210 / 19,3 kg 43 040 630

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

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