

Liquid ring vacuum pumps for sterilisers

in two-stage and compact design

SIHI^{sterivac}



LEMS 30, LEMS 55

Pressure range: 33 to 1013 mbar
Suction volume flow: 9 to 57 m³/h

CONSTRUCTION TYPE

Sterling 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 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 central drain
- no metallic contact of rotating parts

Sterling SIHI liquid ring vacuum pumps of the LEMS series are two-stage ones.



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 pressures of 33 ... 900 mbar must be created by robust vacuum pumps.

NOTE

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

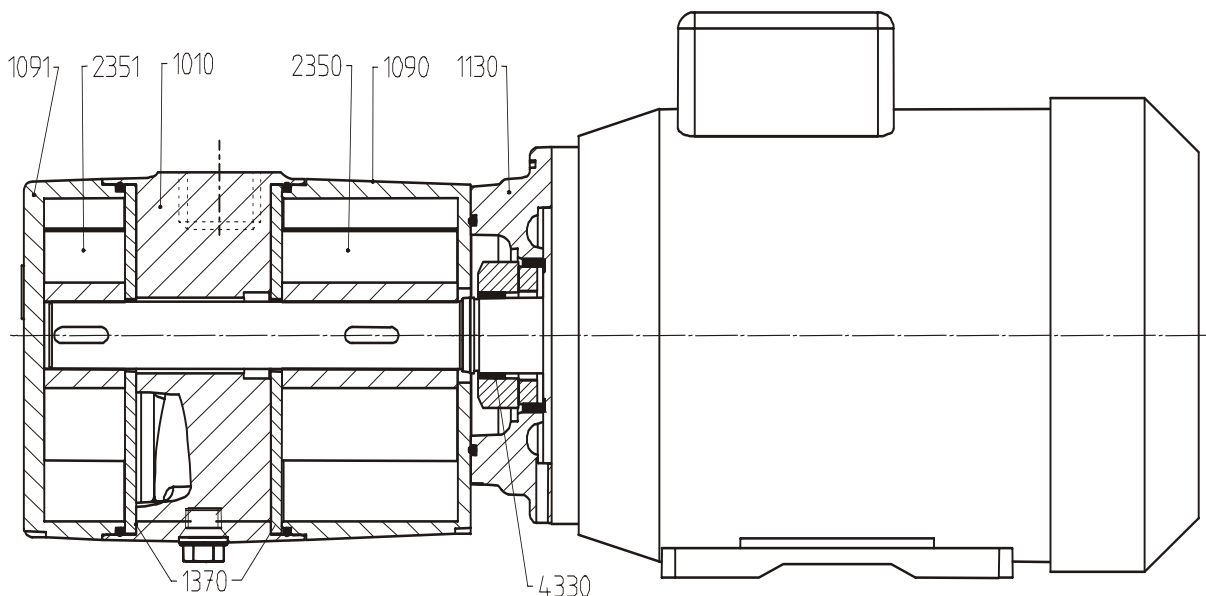
GENERAL TECHNICAL DATA

Pump type	unit	LEMS 30	LEMS 55
Speed	50 Hz 60 Hz	1/min	2900 3500
Max. compression over pressure	bar		0.3
Max. admissible pressure difference	bar		1.1
Moment of inertial of rotating pump parts and of the water filling	kg · m²	0.004	0.0065
Sound pressure level at Suction pressure of 80 mbar	dB (A)	63	63
Max. gas temperature	dry °C saturated °C		200 100
Service liquid			
max. admissible temperature of material design 0A	°C		80
max. viscosity	mm²/s		4
max. density	kg/m³		1200
Volume up to shaft level	litre	1.0	1.2
Max. flow resistance of the heat exchanger	bar		0.2

The combination of several limiting values is not admissible.

Material design

Item	COMONENTS	MATERIAL DESIGN 0A
1010	Vacuum casing	0.6025
1130	Intermediate casing	
1090, 1091	Central body	
1370	Guide disc	1.4301
2350, 2351	Vane wheel impeller	2.1096.01
4330	Mechanical seal	Ceramic / Perbunan

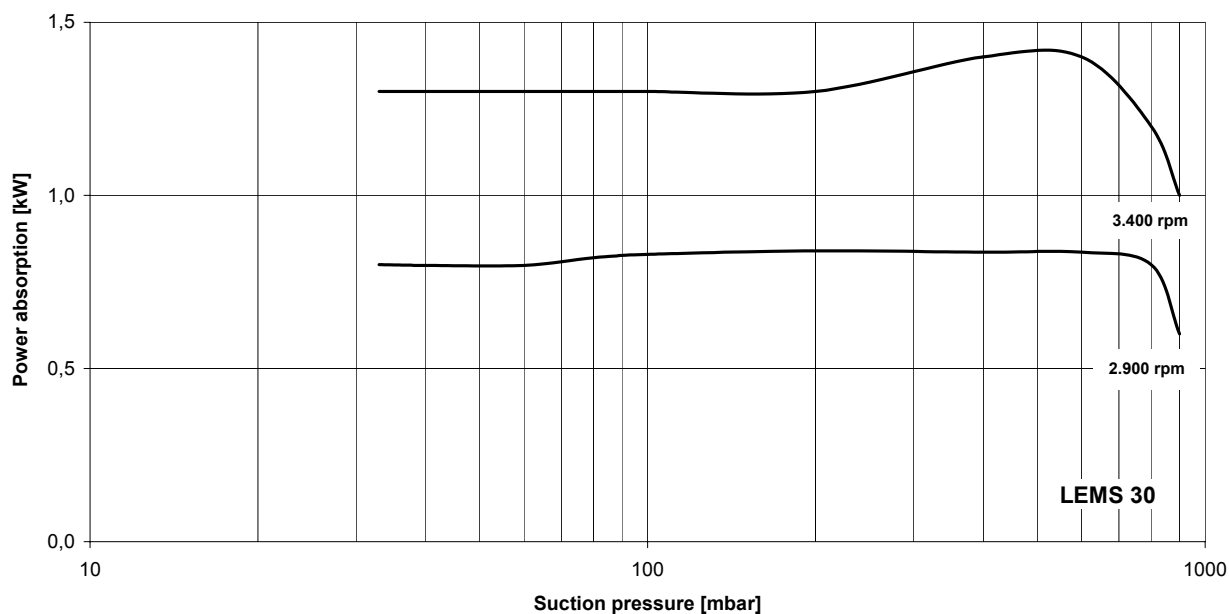
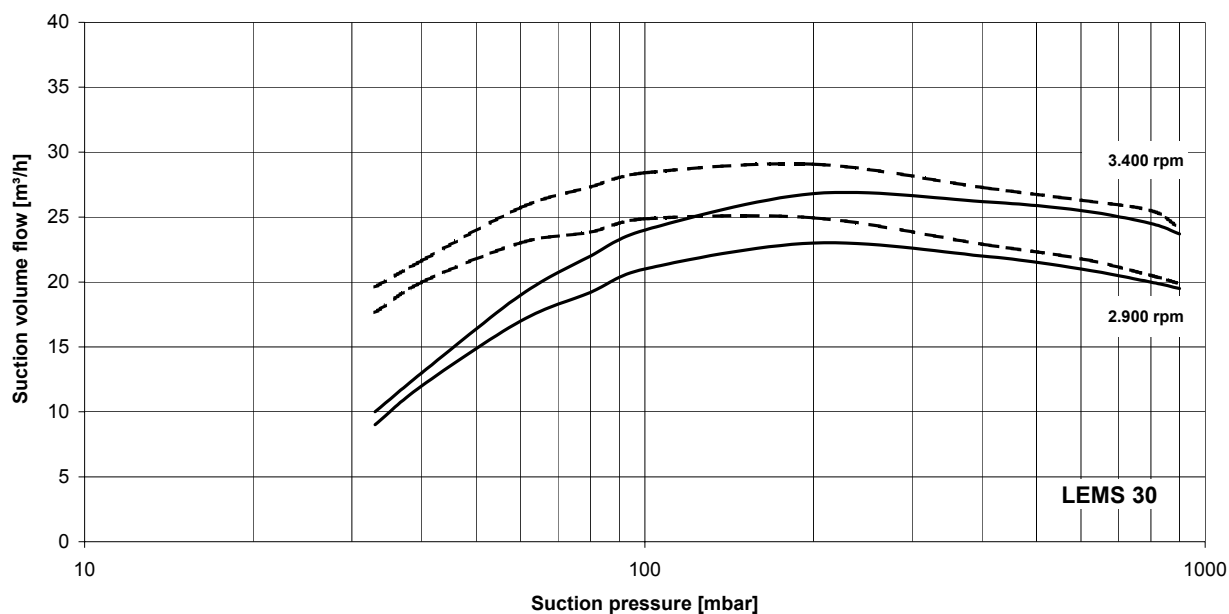
Sectional drawing LEMS 30, LEMS 55 material design 0A

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

Suction pressure [mbar]		33					120					200					400				
Pump type	Speed [1/min]	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					
LEMS 30	2800	0,06	0,10	0,17	0,35	0,06	0,09	0,16	0,3	0,06	0,09	0,16	0,3	0,05	0,09	0,15	0,25				
	3400	0,08	0,14	0,22		0,08	0,13	0,20		0,08	0,13	0,20		0,08	0,12	0,18					
LEMS 55	2800	0,08	0,14	0,22	0,35	0,08	0,13	0,20	0,3	0,08	0,13	0,20	0,3	0,08	0,12	0,18	0,25				
	3400	0,11	0,16	0,24		0,10	0,15	0,22		0,11	0,16	0,22		0,10	0,15	0,20					

FB = fresh liquid service

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

Suction volume flow and power absorption LEMS 30

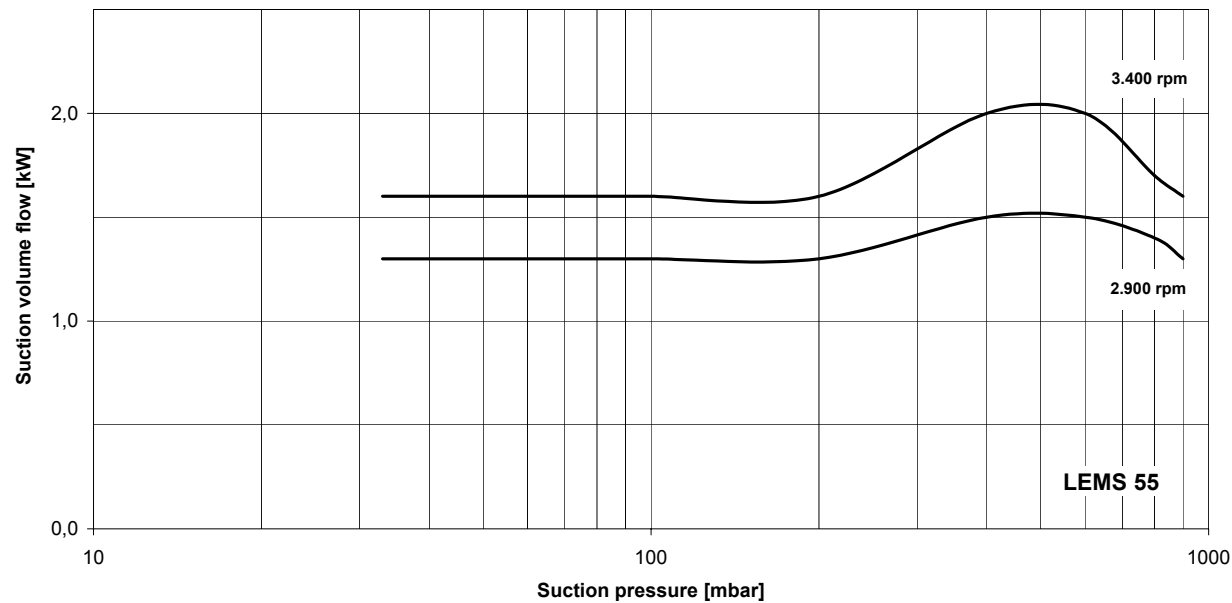
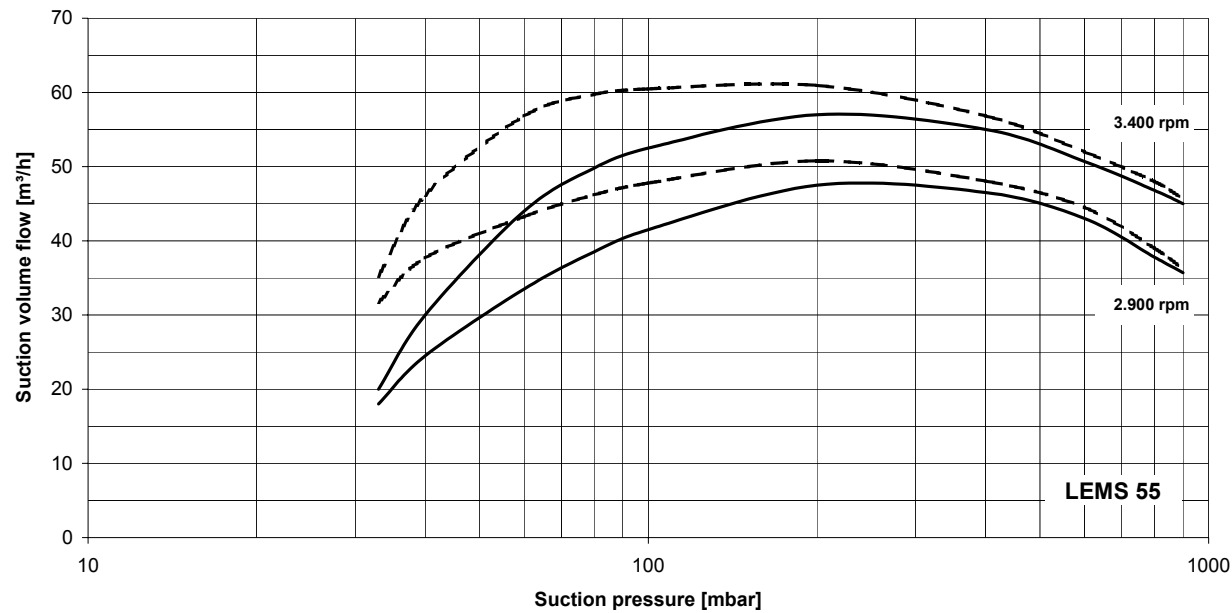


The operating data are applicable under the following conditions:

- 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%
 Max. fresh water need with lowest suction pressure

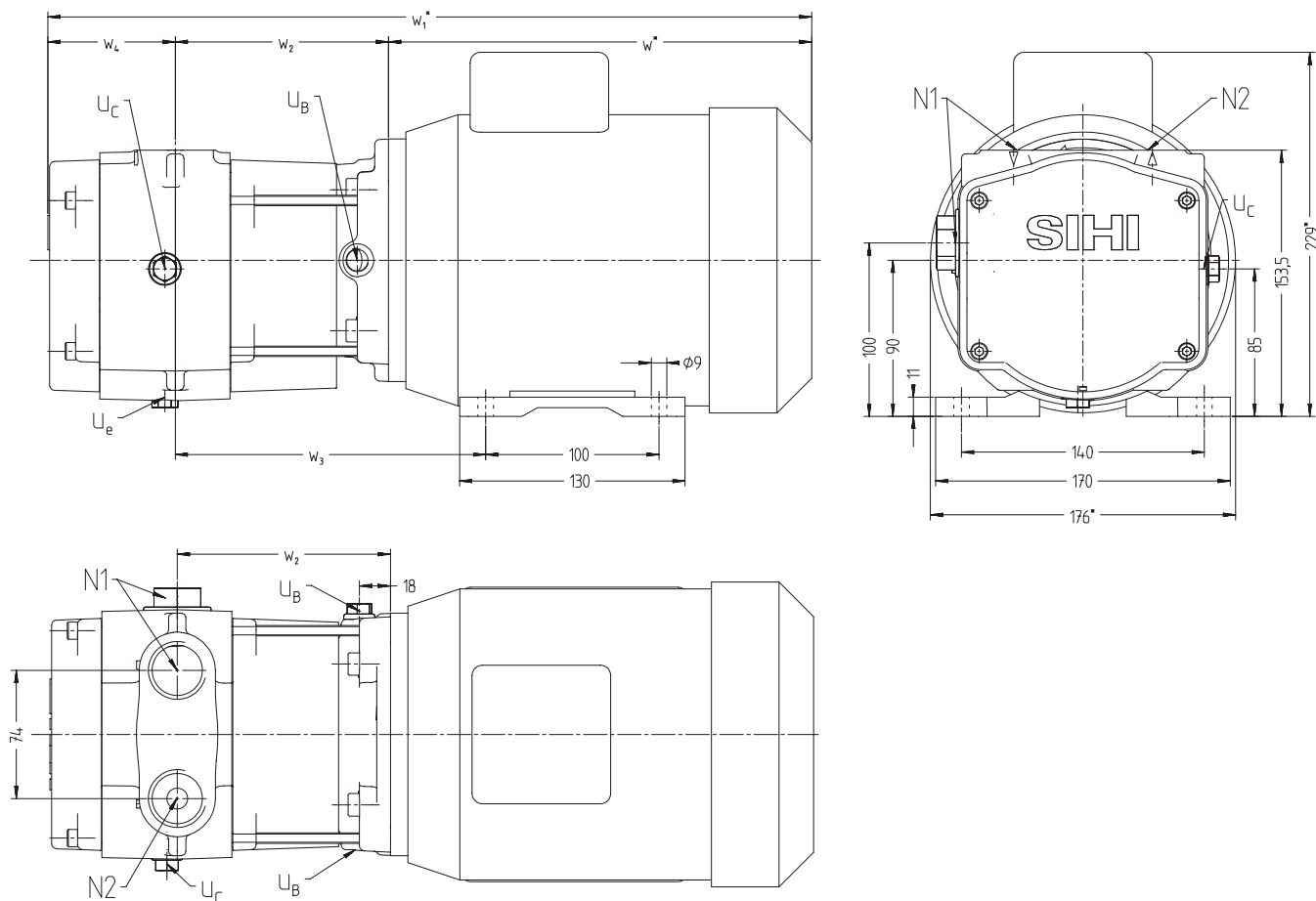
Suction volume flow and power absorption LEMS 55



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%
Max. fresh water need with lowest suction pressure

Dimension table LEMS 30 and LEMS 55


N 1 = gas inlet G 1 (alternative)

N 2 = gas outlet G 1

U_B = connection for service liquid G ¼

U_c = connection for protection against cavitation G ¼

U_e = drain connection G ¼

	Electric motor IP 55			w*	w ₁ *	w ₂	w ₃	w ₄	weight abt. kg
	Size	kW							
		50 Hz	60 Hz						
LEMS 30	90	1,1	1,5	244	393	88	144	61	23,5
LEMS 55	90	1,5	2,2	244	443	123	179	76	26,5

* Dimensions dependent on the motor make

Order notes

Series + size	Hydraulic+ bearing	Shaft sealing	Material design	Casing seal
	A • Hydraulic A •Z Two grease lubricated antifriction bearing arranged in the motor	X1L Mechanical seal Ceramic / Perbunan	0A Main parts in GG	1 O-rings
LEMS 30	AZ	X1L	0A	1
LEMS 55				

Spare parts

	LEMS 30	LEMS 55
set of joints spares	65007480	

Accessories

Recommended accessories		LEMS 30	LEMS 55
Overhead liquid separator		XBa 244 2.8 kg 35 000 374 35 000 375	
Material design	130 / galvanized 172 / 1.4571	SIHI part no.	
Service liquid line			
Material design	072 / St 37-0 172 / 1.4571	SIHI part no.	on request
Cavitation protection line			
Material design	072 / St 37-0 172 / 1.4571	SIHI part no.	on request
Ball type non-return valve		G1 / 0.7 kg 20 044 637 43 038 310	
Material design	776 / Messing 172 / 1.4571	SIHI part no.	

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