

Liquid ring vacuum pumps in compact design



SIHI^{extruvac}

LEME 130, LEME 155

Pressure range: 100 to 1013 mbar
Suction volume flow: 30 to 170 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
- able to handle water carry over
- easy maintenance and reliable operation
- low noise and nearly free from vibration
- wide choice of material, therefore applicable nearly everywhere
- shaft not contact with the medium
- protection against cavitation as standard
- incorporated dirt drain
- incorporated central drain
- no metallic contact of the rotating parts

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



APPLICATION

Handling and exhausting of dry and humid gases. The pumps are applied in all fields where a pressure of 100 to 900 mbar must be created by robust vacuum pumps. The LEME is specially designed to handle additional water that is exhaust through the suction inlet.

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. 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

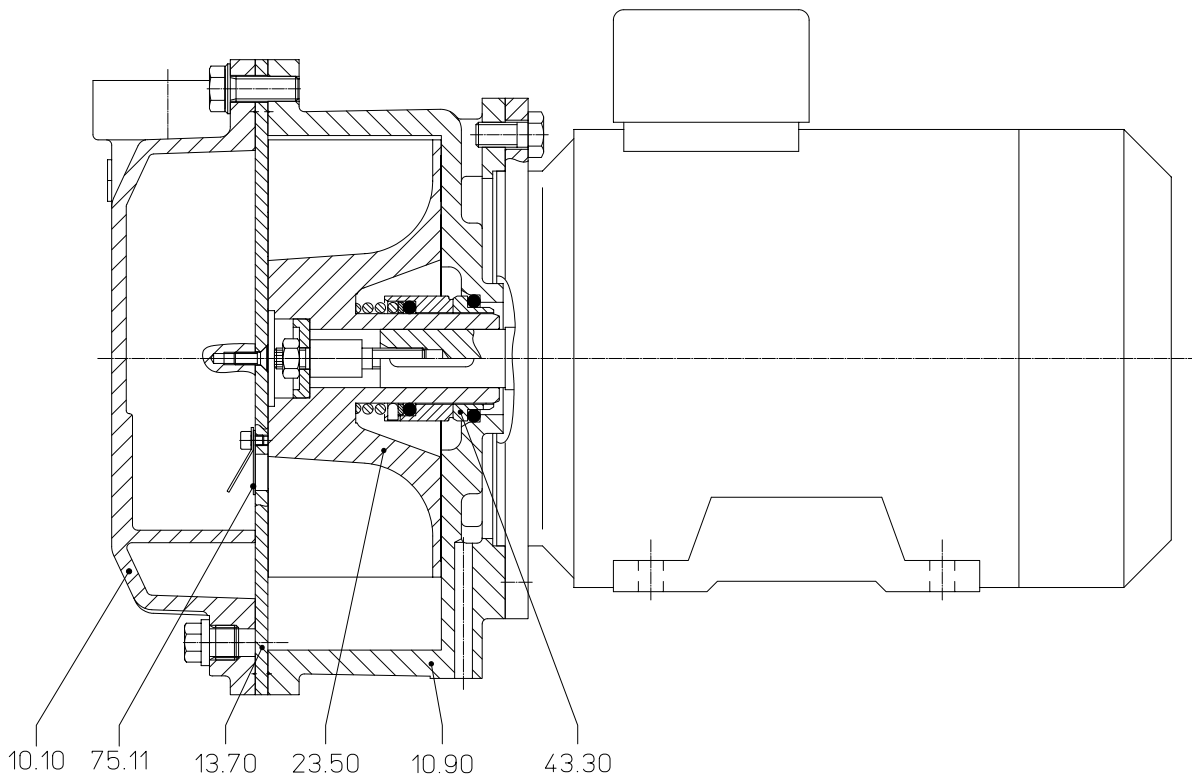
Pump type	unit	LEME 130	LEME 155
Speed	50 Hz 60 Hz		1450 1750
Max. compression over pressure	bar		0.3
Max. admissible pressure difference	bar		1.1
Hydraulic test (over pressure)	bar		3
Moment of inertial of the rotating pump parts and of the water filling	kg · m ²	0.053	0.069
Sound pressure level at a suction pressure of 150 mbar	dB (A)		65
Max. gas temperature	dry saturated		200 100
Service liquid			
max. admissible temperature	°C		80
max. viscosity	mm ² /s		4
max. density	kg/m ³		1200
volume up to shaft level	litre	2.8	3.2
Max. Water handle capability	m ³ /h		7.5

The combination of several limiting values is not admissible.

Material design

Item	Components	Material design 0A
10.10	Vacuum casing	0.6025
10.90	Central body	
13.70	Guide disk	1.4404
23.50	Vane wheel impeller	2.1096.01
43.30	Mechanical seal	Cr-Steel / Carbon / Perbunan
75.11	Valve plate	PTFE

Sectional drawing LEME 130, LEME 155



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

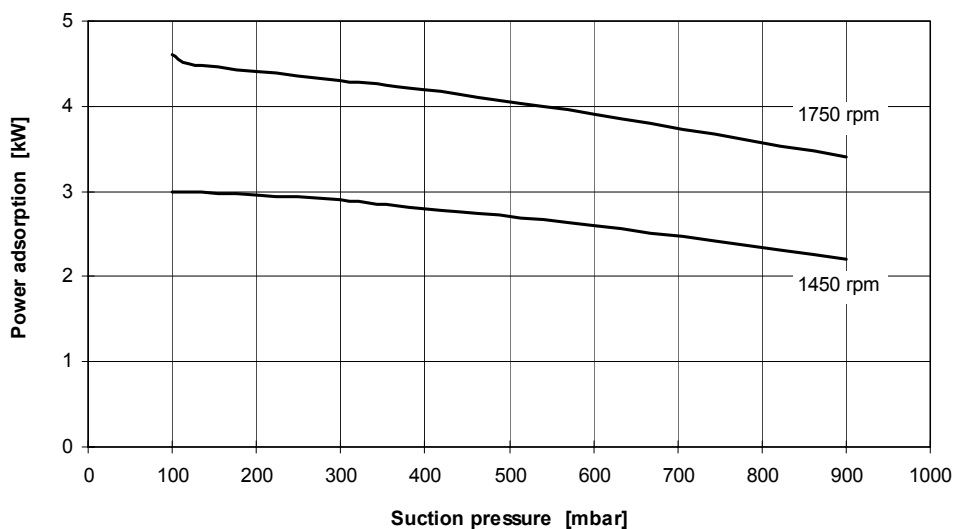
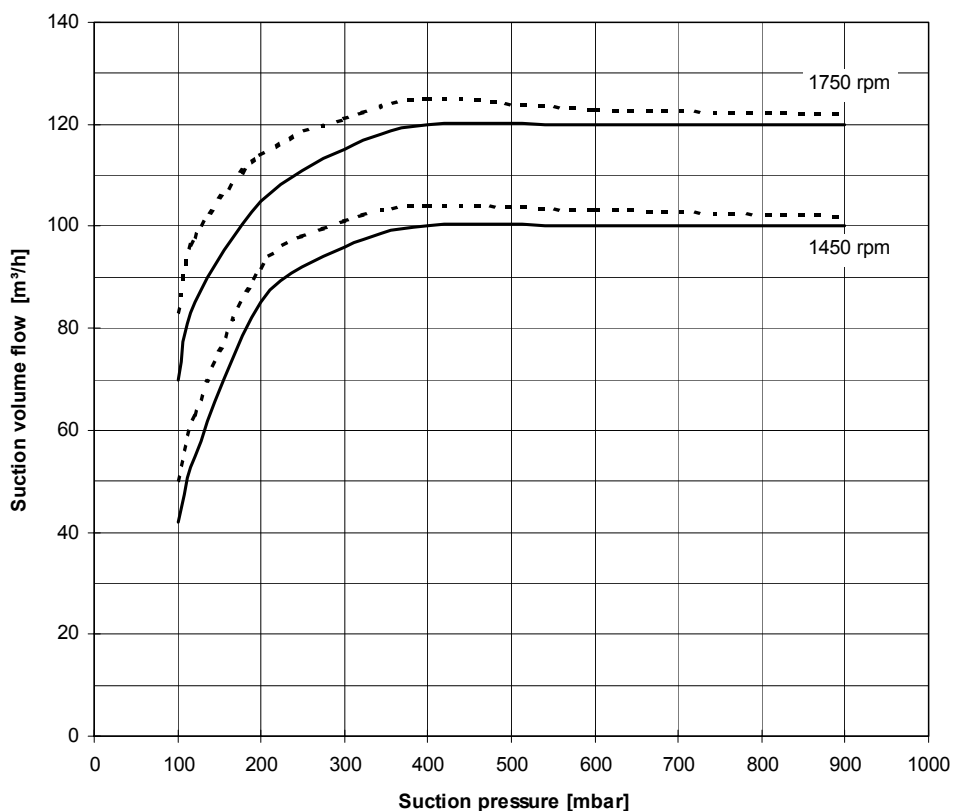
suction pressure [mbar]		100				200				400			
Pump type	speed [rpm]	KB			FB	KB			FB	KB			FB
		difference in temperature [°C]				difference in temperature [°C]				difference in temperature [°C]			
		10	5	2		10	5	2		10	5	2	
LEME 130	1450	0.19	0.31	0.52	0.95	0.19	0.31	0.51	0.9	0.18	0.29	0.46	0.75
	1750	0.24	0.39	0.60		0.26	0.40	0.60		0.24	0.37	0.53	
LEME 155	1450	0.22	0.36	0.58	0.95	0.23	0.37	0.57	0.9	0.23	0.35	0.51	0.75
	1750	0.29	0.44	0.65		0.30	0.45	0.64		0.29	0.41	0.57	

FB = fresh liquid service

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

These values are valid without water handling capabilities.

Suction volume flow and power absorption LEME 130



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

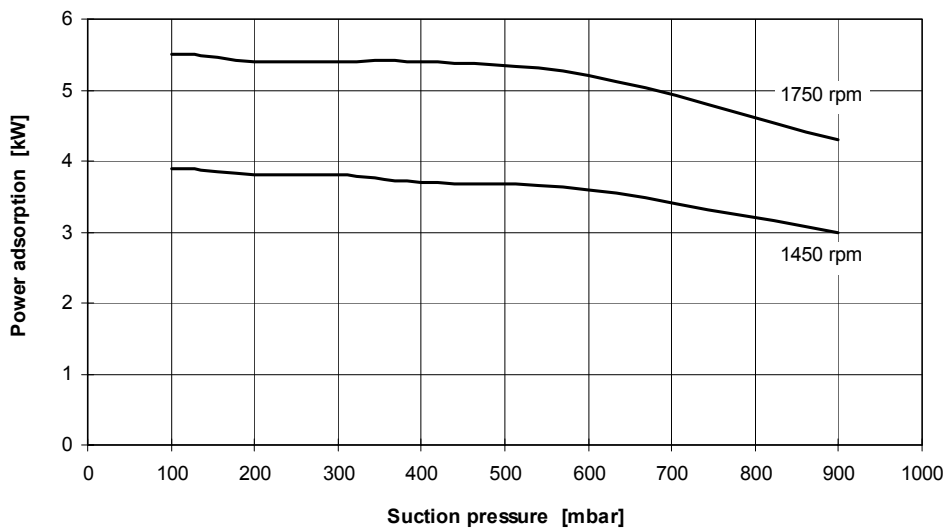
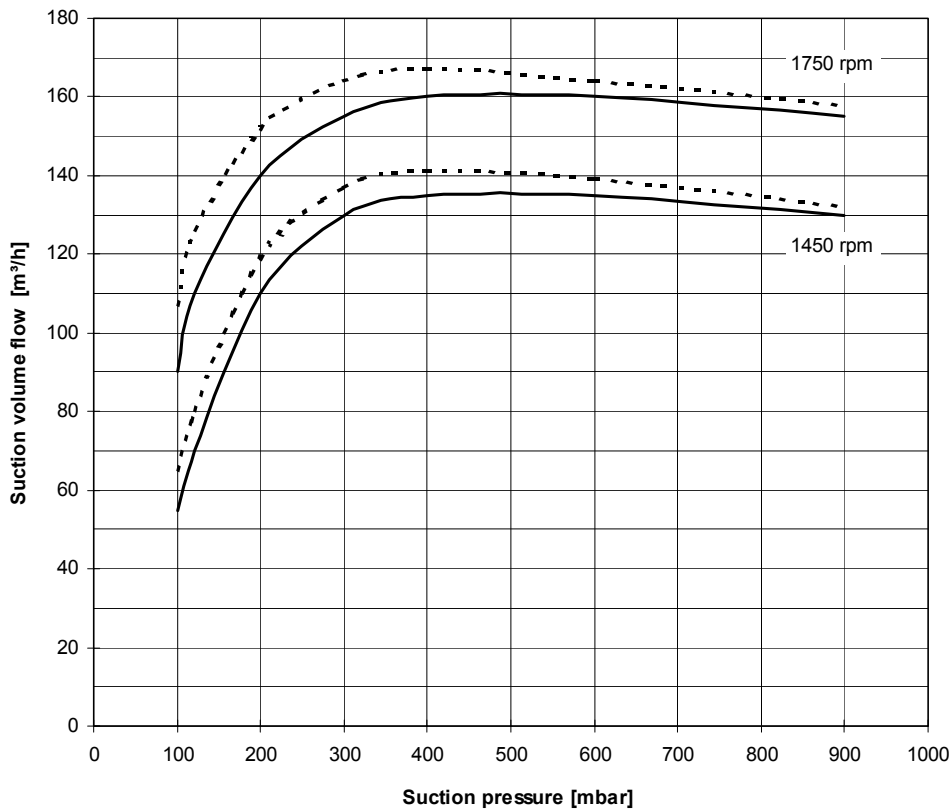
Tolerance of the operating data 10%

Max. fresh water need with lowest suction pressure

Note:

For different operating parameters, especially for additional water handling, the performance curve will change. Dependent on the used electric motor additional medium can be handled up to 7.5 m³/h.

Suction volume flow and power absorption LEME 155



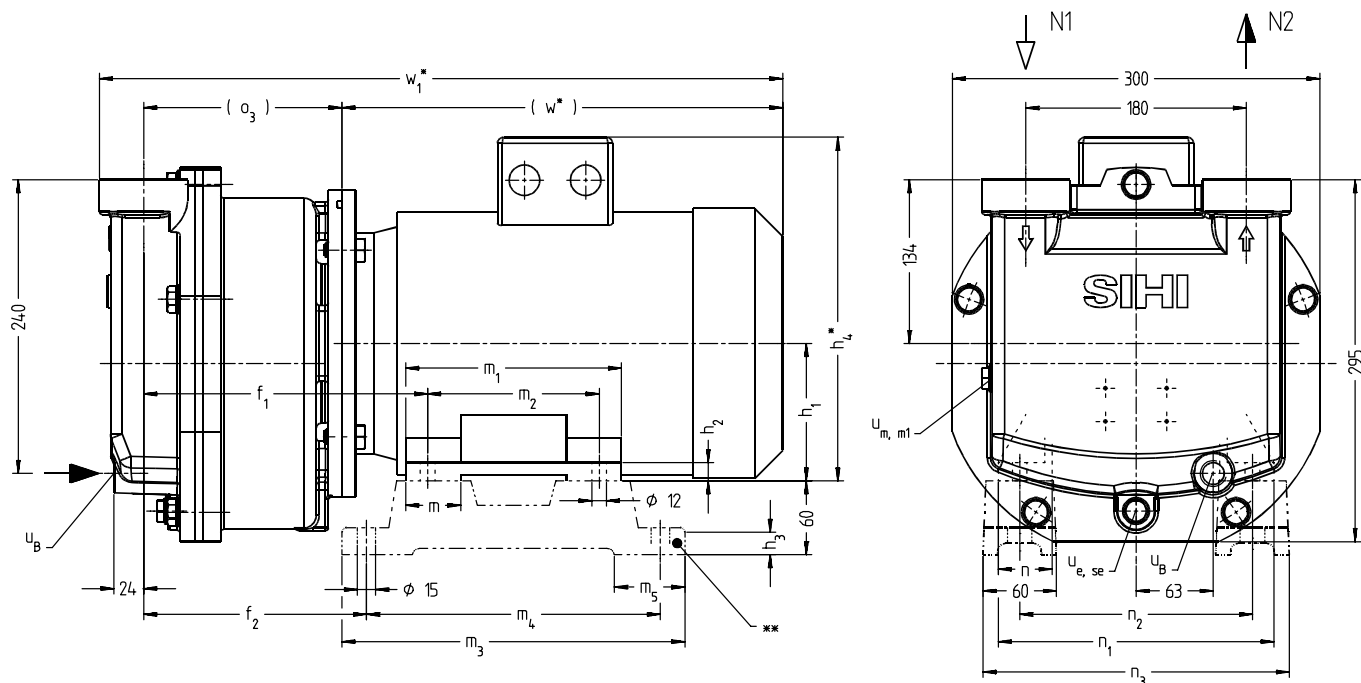
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- pumping medium:
 - dry air: 20°C —————
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- service liquid:
 - water: 15°C

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

Note:
 For different operating parameters, especially for additional water handling, the performance curve will change.
 Dependent on the used electric motor additional medium can be handled up to 7.5 m³/h.

Dimension table



- N 1 = gas inlet G 1 1/2
- N 2 = gas outlet G 1 1/2
- u_B = connection for service liquid G 1/2
- u_e = drain connection G 3/8
- u_{se} = connection for dirt drain G 3/8
- u_m = connection for pressure gauge G 3/8
- u_{m1} = connection for drain valve G 3/8

	Electric motor IP 55		f ₁	f ₂	h ₁	h ₂	h ₃	h ₄ *	m	m ₁	m ₂	m ₃	m ₄	m ₅	n	n ₁	n ₂	n ₃	o ₃	w*	w ₁ *	weight appr. kg	
	size	50 Hz																					60 Hz
LEME 130	112 M	4	4,8	215	165	112	15	22	280	45	176	140	280	240	58	44	225	190	250	145	320	501	60
	112 M	5	6,2																		340	521	68
LEME 155	112 M	5	6,2	232	182	132	18	320	88	218	178	320	278	58	55	256	216	276	162	426	624	92	
	132 M	6,7	8																	426	624	92	

other motors on request

* dimensions dependent on the motor make

** see list of accessories

Data regarding the pump size - order hints

Series & size	Hydraulic & bearing	Shaft sealing	Material design	Casing seal
	<ul style="list-style-type: none"> • Hydraulic for additional water handling • Z two grease lubricated antifriction bearings arranged in the motor 	AAE mechanical seal, O-rings Perbunan	0A main parts of GG	0 Liquid seal
LEME 130	0Z	AAE	0A	0
LEME 155				

Motor selection table

	motor enclosure IP 55 50 Hz			motor enclosure IP 55 60 Hz			size	motor design.
	Y-voltage V +/- 5%	Δ-voltage V +/- 5%	power kW	Y-voltage V +/- 5%	Δ-voltage V +/- 5%	power kW		
LEME 130	660-725	380-420	4,0	-	440-480	4,8	112 M	BW
LEME 130	660-725	380-420	5,0	-	440-480	6,2	112 M	CW
LEME 155	660-725	380-420	5,0	-	440-480	6,2	112 M	BW
LEME 155	660-725	380-420	6,7	-	440-480	8,0	132 M	CW

Example for ordering:

The construction size LEME 155 0Z AAE 0A 0 with 5 kW three-phase ac motor (50 Hz, 400 VΔ) 1450 rpm has the complete order number:

LEME 155 0Z AAE 0A 0 BW

For motors with different Voltage or frequencies please specify.

Accessories

Recommended accessories		LEME 130	LEME 155
SIHI ball type non-return valve	size	G 1 ½	
Material design	weight	1.4 kg	
776 / brass and NBR	SIHI part no.	20 044 023	
Support foot	SIHI part no.		
for motor size 112 M		20 047 010	20 047 010
for motor size 132 M		-	20 047 012

Spare parts

Spare part kit		LEME 130	LEME 155
Basic repair kit	SIHI part no.		
Consist of: mechanical seal, valve plate, sealing material, adjustment crew		65007510	65007520

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

Sterling SIHI GmbH

Lindenstraße 170, D-25524 Itzehoe, Germany
Telephone: +49 (0) 48 21 / 7 71 - 01, Fax: +49 (0) 48 21 / 7 71 - 274