

SIHI^{compact} - Vacuum Compact Units

One stage



PLC 51, 91, 126, 161, 251, 325, 425

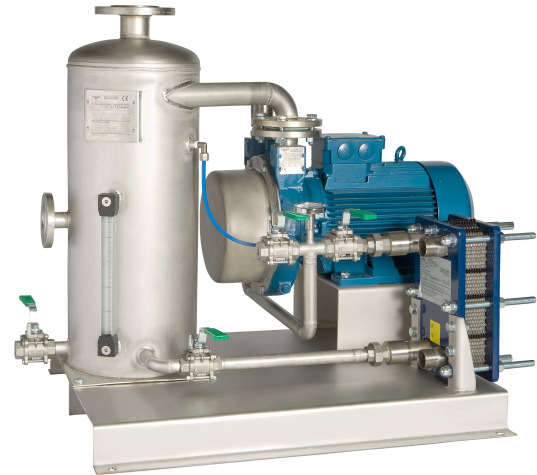
Pressure range: 33 to 1013 mbar
Suction capacity: 22 to 473 m³/h

CONSTRUCTION

The SIHI^{compact} vacuum units consist of various components which are assembled together to form a compact unit with an optimal function range. The LEM liquid ring vacuum pump utilised in these units is of a single stage design and of a simple and robust construction with the following features:

- Non polluting due to near isothermal compression
- Oil free, no lubrication in the working chamber
- Capable of handling nearly all gases and vapours
- Small quantities of entrained liquid can be handled
- Easy to maintain and reliable operation
- Low noise and virtually free from vibration
- Anti cavitation protection as standard

The SIHI^{compact} vacuum units are produced as standard versions with heat exchangers to minimise the consumption of the service liquid.



NOTE

During its operation, the liquid ring vacuum pump must be continuously supplied with service liquid, normally water, in order to eliminate the heat resulting from the gas compression and to prevent the pump from dry running operation. The service liquid is separated from the process gas in a separator. Depending on the chosen arrangement and application the service liquid can be reused within the system (close circuit). In this case the pressure difference between the suction inlet and discharge outlet should be 200 mbar at minimum.

The direction of rotation is clockwise when viewed from the drive end of the pump.

APPLICATION

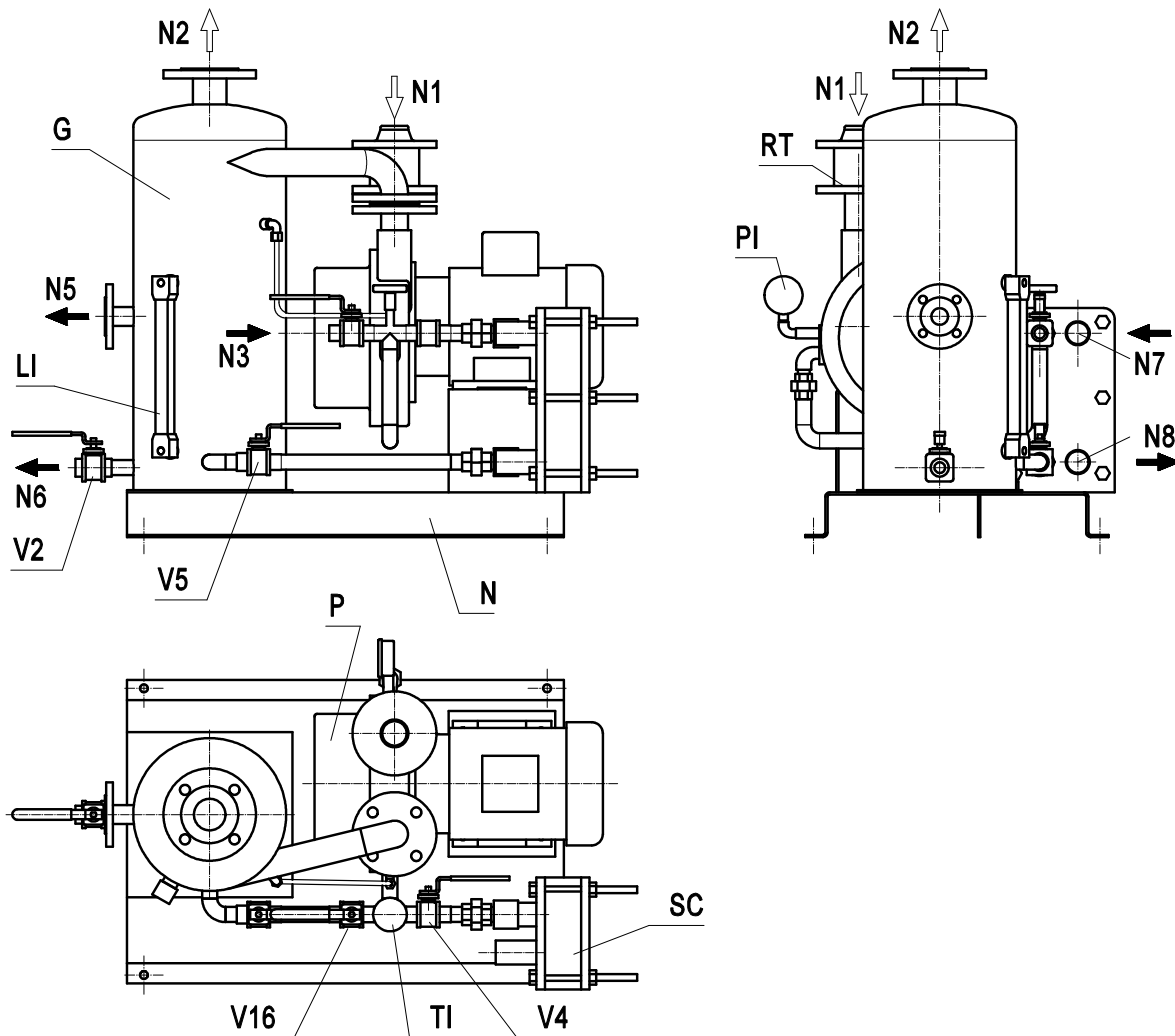
For handling dry and saturated forms of gases. Small quantities of entrained liquid in the suction gas stream can also be dealt with. The SIHI^{compact} is designed for vacuum applications of between 33 and 800 mbar.

GENERAL TECHNICAL DATA

		Unit	PLC 51	PLC 91	PLC 126	PLC 161	PLC 251	PLC 325	PLC 425
Speed	50 Hz	rpm	2900			1450			
	60 Hz		3500			1750			
max. compression over pressure		bar				0.3			
max. admissible pressure difference		bar				1.1			
Hydraulic test (over pressure)		bar				3			
Moment of the inertia of the rotating pump parts and of the water filling		kg · m ²	0.005	0.007	0.009	0.070	0.097	0.14	0.21
Sound pressure level at a suction pressure of 80 mbar (standard values)		dB (A)	68	72		65		70	72
max. gas temperature	dry	°C				200			
	saturated	°C				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	20	20	20	30	30	60	60
max. flow resistance of the heat exchanger		bar				0.2			

The combination of several limiting values is not admissible.

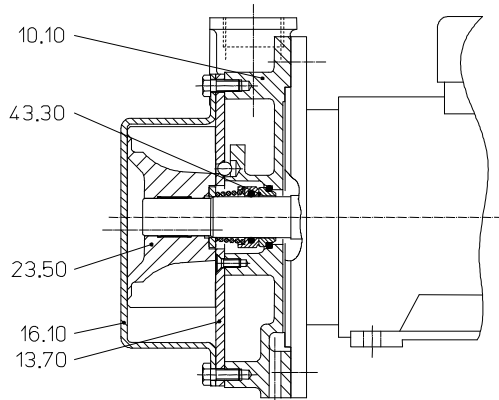
Material design of the unit



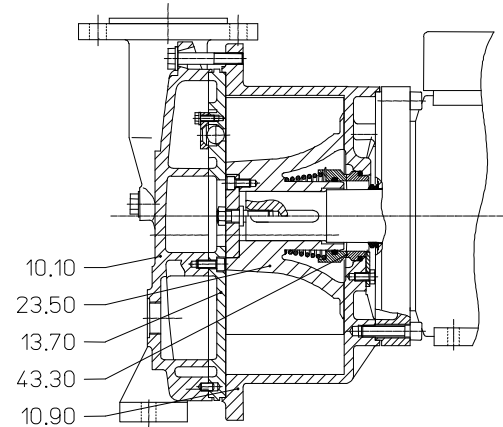
		PLC 51, 91, 126, 161, 251		PLC 325, 425	
		material design		material design	
		0	4	0	4
P	Vacuum pump	see page 3			
G	Liquid separator	1.4301 AISI 304			
N	Frame	1.4301 AISI 304		Carbon steel	
RT	Non return valve	Carbon steel	1.4401 AISI 316	Carbon steel	1.4401 AISI 316
SC	Heat exchanger	1.4401 AISI 316			
PI	Vacuum gauge	Brass	1.4401 AISI 316	Brass	1.4401 AISI 316
TI	Thermometer	Brass	1.4401 AISI 316	Brass	1.4401 AISI 316
LI	Liquid level indicator	Resin			
V2	Cut-off valve	1.4408 AISI 316L			
V4	Cut-off valve	1.4408 AISI 316L			
V5	Cut-off valve	1.4408 AISI 316L			
V16	Cut-off valve	1.4408 AISI 316L			

Material design of the pump

LEM 51, 91, 126, 161, 251



LEM 325, 425



		Material design 0						
		PLC						
		51	91	126	161	251	325	425
10.10	Casing	0.6025						
13.70	Guide disc	1.4301 AISI 304					0.6025	
10.90	Central body	-					0.6025	
16.10	Cover	1.4301 AISI 304					-	
23.50	Impeller	2.1096.01	2.0970.02	2.0970.02	2.1096.01	2.1096.01	0.7043	
43.30	Mechanical seal	EBPGG				BVFFF	EBPGG	

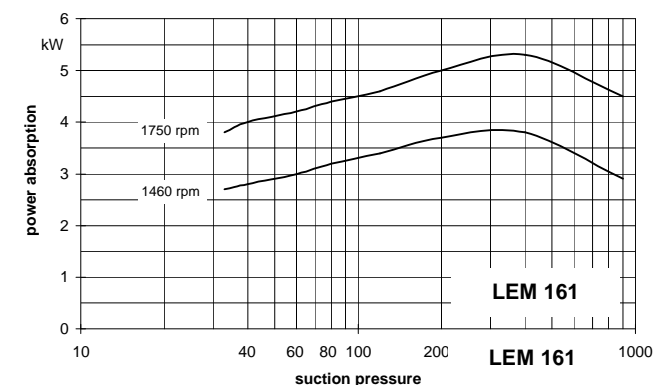
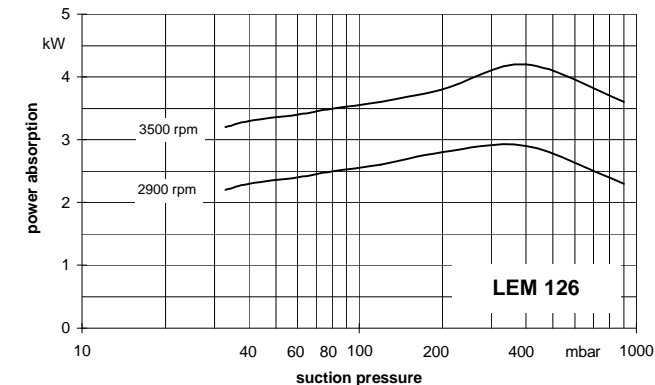
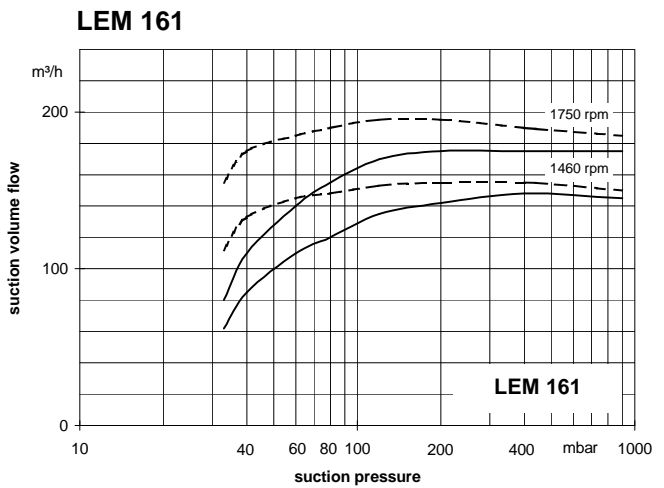
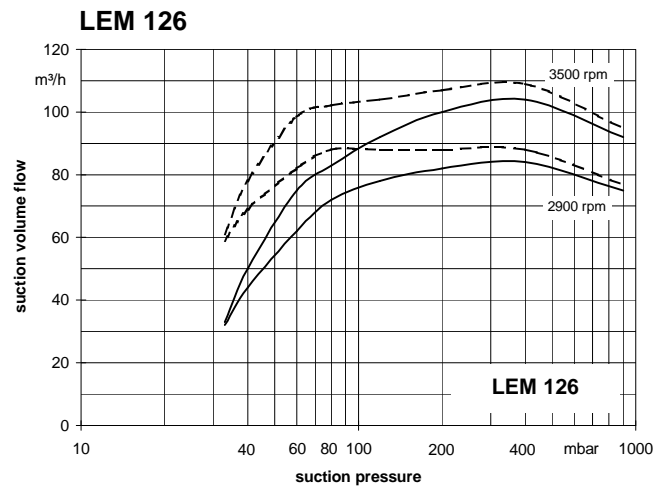
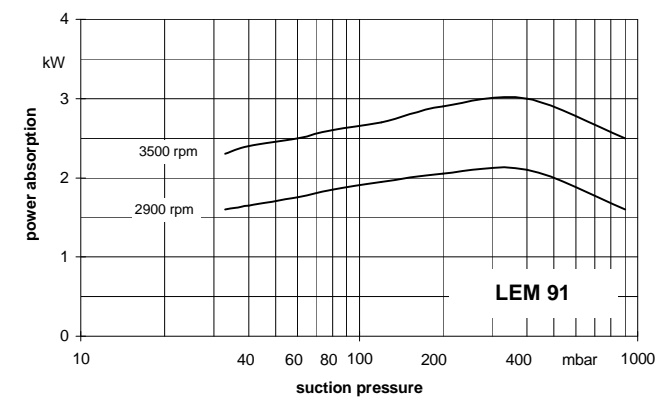
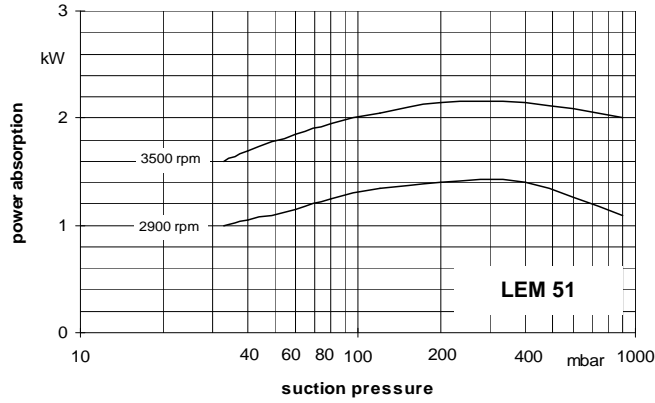
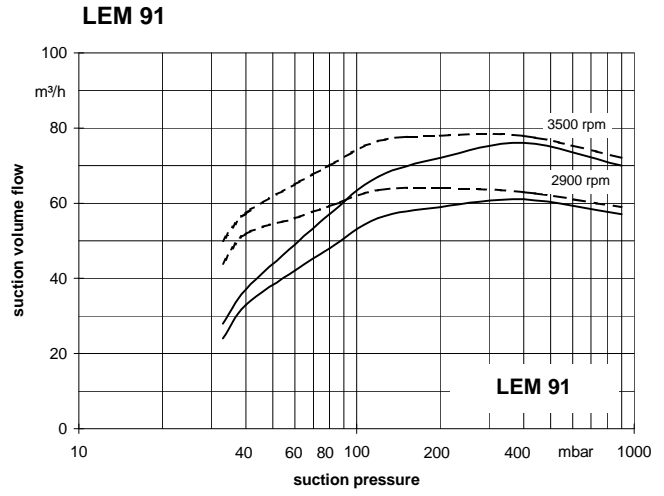
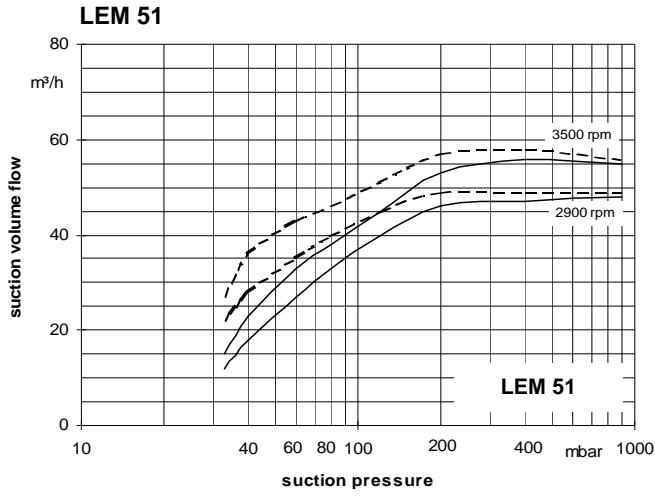
		Material design 4						
		PLC						
		51	91	126	161	251	325	425
10.10	Casing	1.4408						
13.70	Guide disc	1.4404					1.4408	
10.90	Central body	-					1.4408	
16.10	Cover	1.4404					-	
23.50	Impeller	1.4517						
43.30	Mechanical seal	GBVGG				AQ1VGG	GBVGG	

Suction volume flow and power absorption

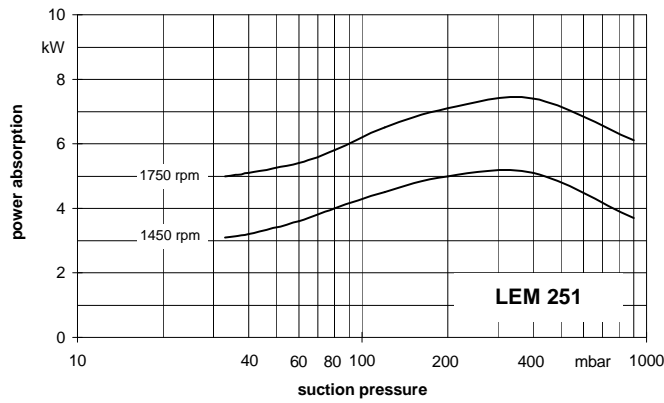
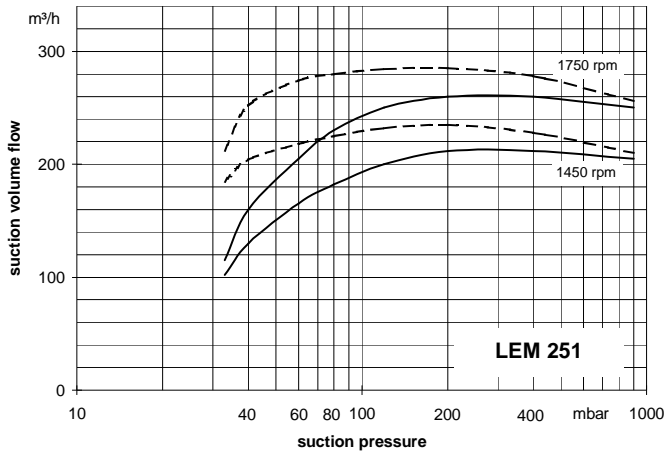
The operating data are applicable under the following conditions:

- Medium, 20°C: dry air _____
- Service liquid, 15°C: Water _____
- Tolerance of the operating data 10%

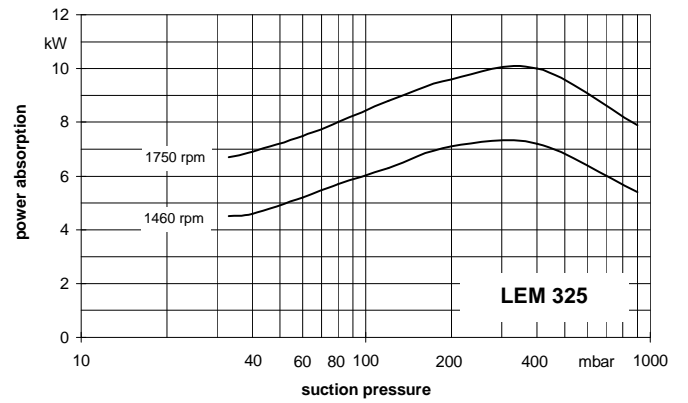
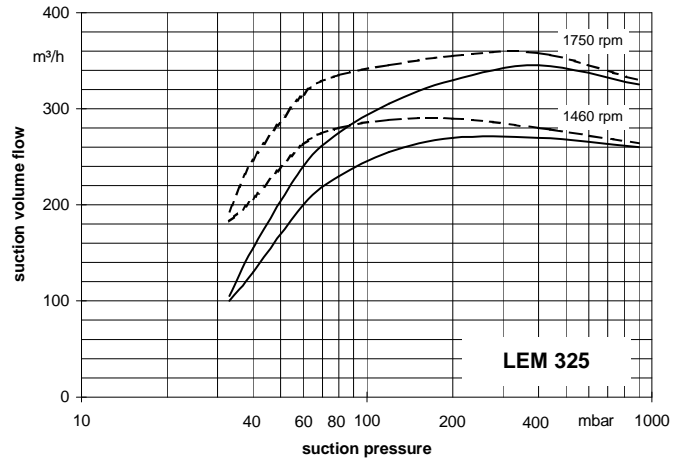
- Medium, 20°C: saturated air _____
- Discharge pressure: 1013 mbar (atmospheric pressure)



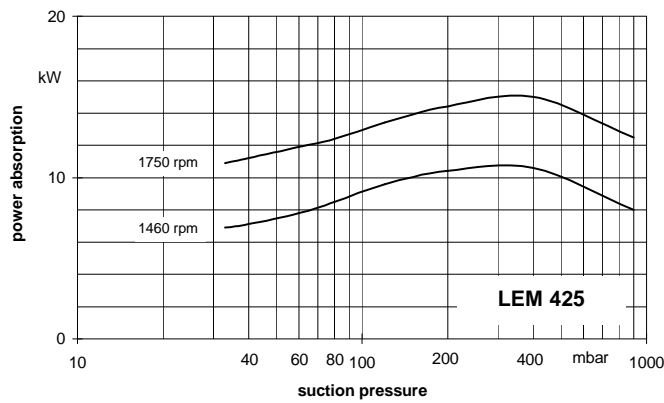
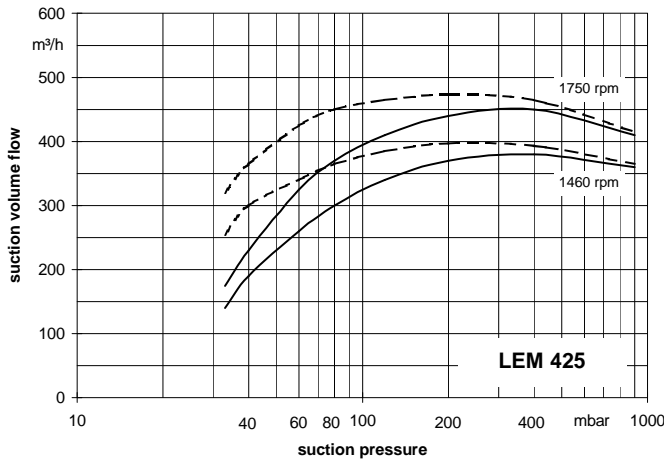
LEM 251



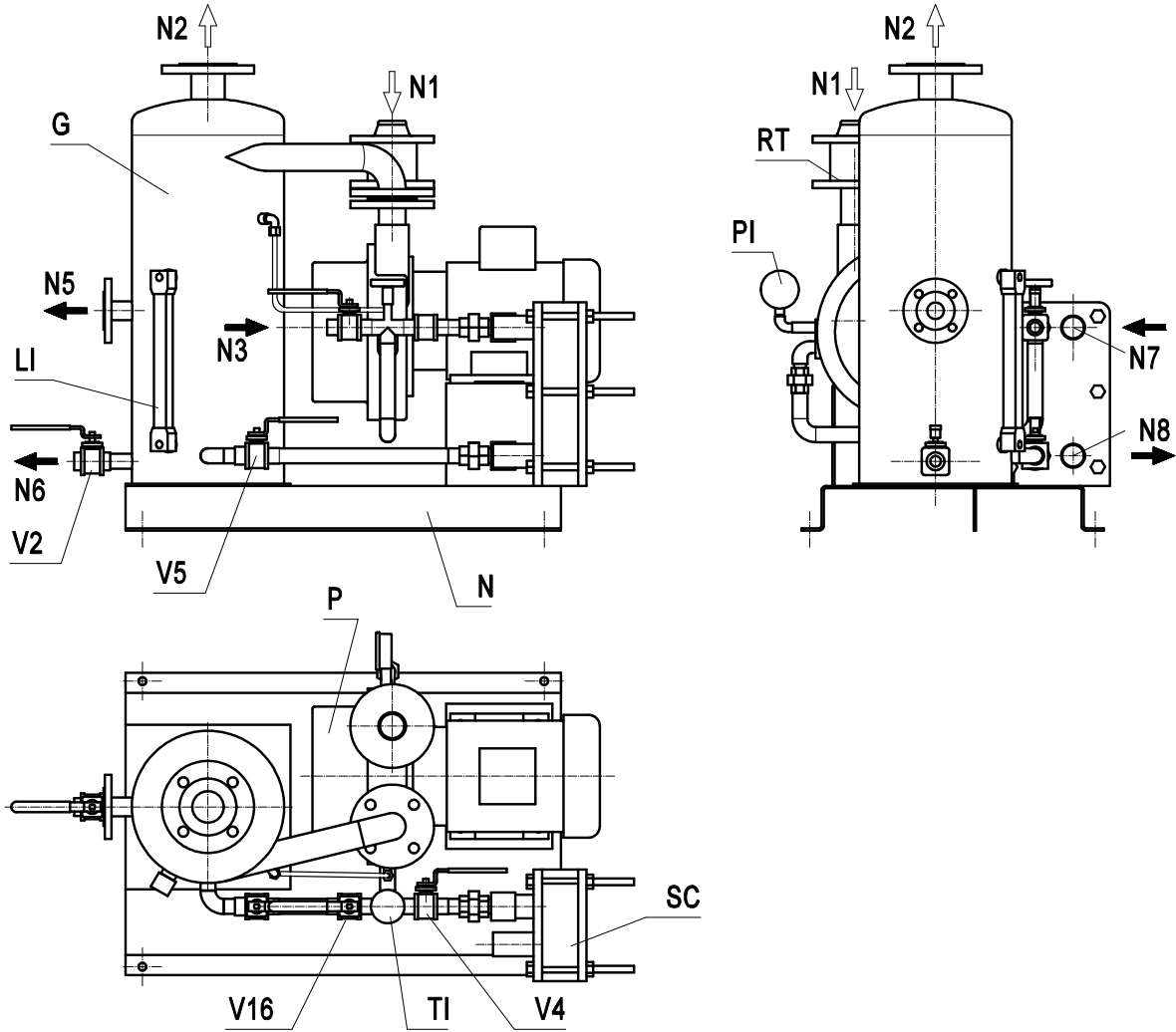
LEM 325



LEM 425

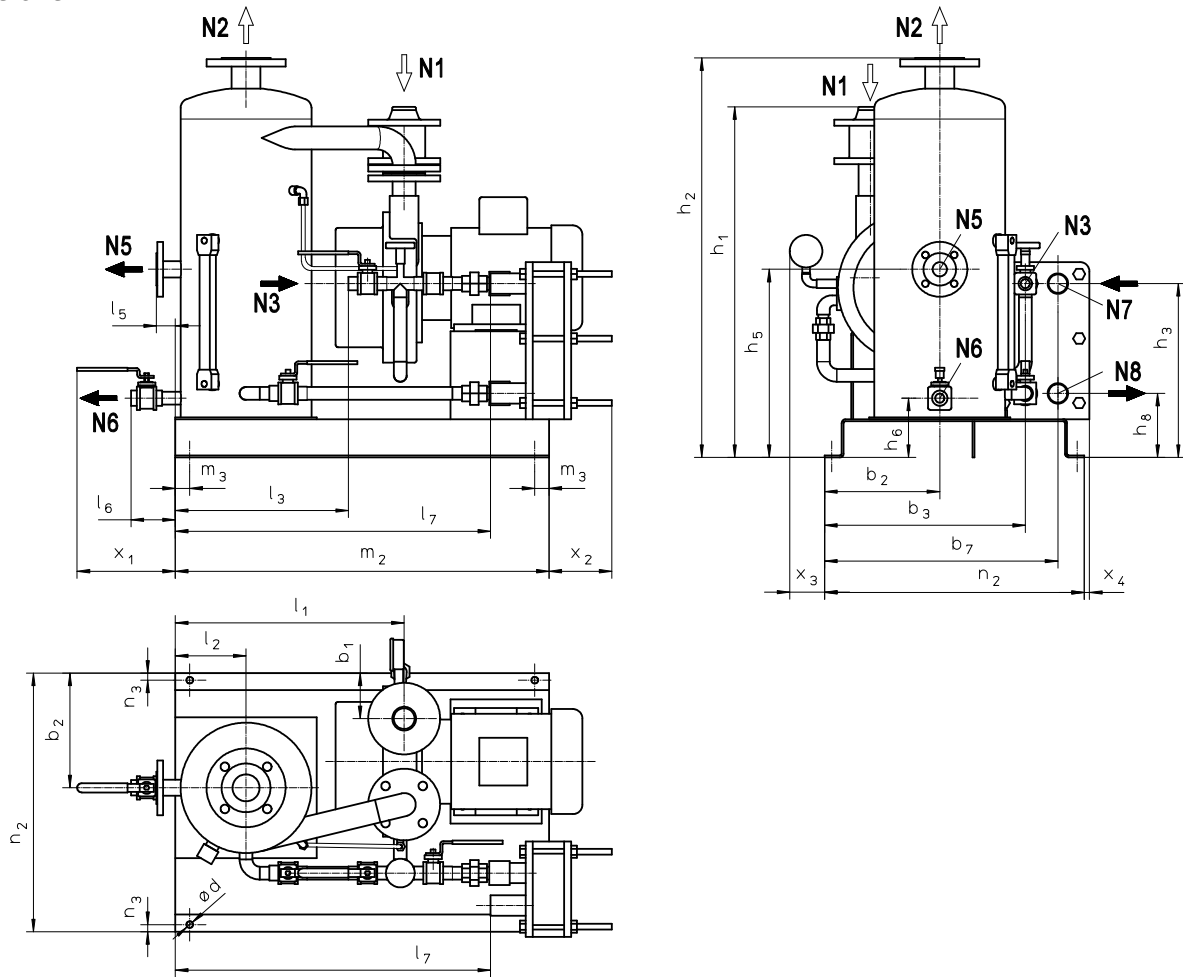


Connections



PLC		51	91	126	161	251	325	425
N1	Gas inlet	Ø43,5x3 DIN EN 10220	Ø43,5x3 DIN EN 10220	Ø43,5x3 DIN EN 10220	Ø49,5x3 DIN EN 10220	Ø60.3x2.9 DIN EN 10220	Ø76.1x3.6 DIN EN 10220	Ø76.1x3.6 DIN EN 10220
N2	Gas outlet	DN 40 DIN EN 1092-1	DN 40 DIN EN 1092-1	DN 40 DIN EN 1092-1	DN 50 DIN EN 1092-1	DN 50 DIN EN 1092-1	DN 80 DIN EN 1092-1	DN 80 DIN EN 1092-1
N3	Make up liquid inlet	G 3/4	G 3/4	G 3/4	G 3/4	G 3/4	G 3/4	G 3/4
N5	Overflow	DN 25 DIN EN 1092-1	DN 25 DIN EN 1092-1	DN 25 DIN EN 1092-1	DN 25 DIN EN 1092-1	DN 25 DIN EN 1092-1	DN 50 DIN EN 1092-1	DN 50 DIN EN 1092-1
N6	Drainage	G 1/2	G 1/2	G 1/2	G 3/4	G 3/4	G 1	G 1
N7	Cooling water inlet	G 1 1/4	G 1 1/4	G 1 1/4	G 1 1/4	G 1 1/4	G 1 1/4	G 1 1/4
N8	Cooling water outlet	G 1 1/4	G 1 1/4	G 1 1/4	G 1 1/4	G 1 1/4	G 1 1/4	G 1 1/4

Dimensions



size	dimensions in mm																
	b1	b2	b3	b7	d	h1	h2	h3	h5	h6	h8	l1	l2	l3	l5	l6	l7
PLC 51 B	151	223	376	444	Ø14	770	740	364	424	123	134	380	120	252	37	98	549
PLC 91 B	115	223	376	444	Ø14	704	790	364	409	124	134	380	120	267	37	98	564
PLC 126 B	115	223	376	444	Ø14	704	790	364	409	124	134	380	120	267	37	98	564
PLC 161 B	109	254	482	550	Ø14	734	843	364	394	124	134	478	148	361	40	93	658
PLC 251 B	104	284	462	530	Ø14	673	843	364	394	124	134	478	148	354	40	93	651
PLC 325 A	180	300	703	771	Ø18	1068	1444	722	742	172	342	619	150	307	103	108	693
PLC 325 B	180	300	703	771	Ø18	1068	1444	722	742	172	342	619	150	307	103	108	693
PLC 425 A	180	300	703	771	Ø18	1068	1444	722	742	172	342	619	150	307	103	108	693
PLC 425 B	180	300	703	771	Ø18	1068	1444	722	742	172	342	619	150	307	103	108	693

size	dimensions in mm								weight
	m2	m3	n2	n3	x1	x2	x3	x4	app. kg
PLC 51 B	670	30	572	15	206	131	0	0	98
PLC 91 B	690	30	572	15	206	126	40	0	105
PLC 126 B	690	30	572	15	206	126	40	0	100
PLC 161 B	830	30	682	15	205	96	60	0	190
PLC 251 B	830	30	662	15	205	88	69	0	215
PLC 325 A	1320	25	600	50	248	0	0	260	320
PLC 325 B	1320	25	600	50	248	26	0	260	360
PLC 425 A	1320	25	600	50	248	40	0	260	365
PLC 425 B	1420	25	600	50	248	0	0	260	400

Cooling liquid data

For the cold side of the heat exchanger.

Example for an inlet temperature of the cooling liquid from 12°C and an outlet temperature from 15°C.

	PLC	51	91	126	161	251	325	425
Cooling liquid	m³/h	Water						
Inlet temperature Service liquid	°C	17,5	18	18,5	17,5	18	18,5	19,5
Outlet temperature Service liquid	°C	15	15	15	15	15	15	15
Flow rate	m³/h	0,43	0,63	0,86	1,15	1,58	3,15	4,3
Pressure loss	bar	0,04	0,07	0,07	0,14	0,12	0,09	0,05

Explanation of the type code

Order no.	Type	Size	Material design	Frequency	Motor data 50 Hz		Motor data 60 Hz	
				A = 50 Hz B = 50 + 60 Hz	kW V-D	1/min V-Y	kW V-D	1/min V-Y
75001924	PLC	51	0	B	1.8	3000	2.2	3600
75001925			4		200...240	346...420	200...280	346...480
75001926		91	0	B	2.75	3000	3.3	3600
75001927			4		200...240	346...420	200...280	346...480
75001928		126	0	B	4.0	3000	4.8	3600
75001929			4		200...240	346...420	200...280	346...480
75001950		161	0	B	5.0	1500	6.0	1800
75001951			4		380...420	660...725	380...480	660
75001952		251	0	B	6.7	1500	8.0	1800
75001953			4		380...420	660...725	380...480	660
75001954		325	0	A	7.5	1500		
75001956					4	380...420	660...725	
75001955			4	B	10.8	1500	13.2	1800
75001957					380...420	660...725	380...480	660
75001958		425	0	A	11.0	1500		
75001960					4	380...420	660...725	
75001959			4	B	15.0	1500	18.0	1800
75001961					380...420	660...725	380...480	660

Designs subject to change without prior notice.