

### PL 91 M, PL 126 M, PL 161 M

**Pressure range:** 33 to 1013 mbar  
**Suction capacity:** 24 to 195 m<sup>3</sup>/h

#### DESIGN AND CONSTRUCTION

The SIHI<sup>modular</sup> systems consist of a various components which are assembled together to form a compact unit. Each unit can be varied in accordance with the respective application.

The LEM liquid ring vacuum pump utilised in these systems 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<sup>modular</sup> systems are offered as a service liquid saving arrangement and can be supplied with or without a heat exchanger.

#### APPLICATION

As with the other SIHI liquid ring vacuum pumps this type is also capable of handling dry and saturated forms of gases. Small quantities of entrained liquid in the suction gas stream can also be dealt with. The SIHI<sup>modular</sup> is designed for vacuum applications of between 33-900 mbar, however, this range can be extended when used in conjunction with the respective gas operated ejector. (See standard catalogue for details).

#### GENERAL TECHNICAL DATA

	Unit	PL 91 M	PL 126 M	PL 161 M
Speed	50 Hz 60 Hz	rpm	2900 3500	1460 1750
Max. compression over pressure *)	bar		0,3	
Max. admissible pressure difference *)	bar		1,1	
Hydraulic test (over pressure)	bar		3	
Moment of inertia of the rotating pump parts and of the water filling	kg · m <sup>2</sup>	0,007	0,009	0,070
Sound pressure level at a suction pressure of 80 mbar (standard values)	dB (A)	77		70
Service liquid volume up to shaft level	liter	14,5	14,6	16,0
Max. flow resistance of the heat exchanger	bar		0,2	

The combination of several limiting values is not admissible.

\*) In this case special measures should be taken for the separator.

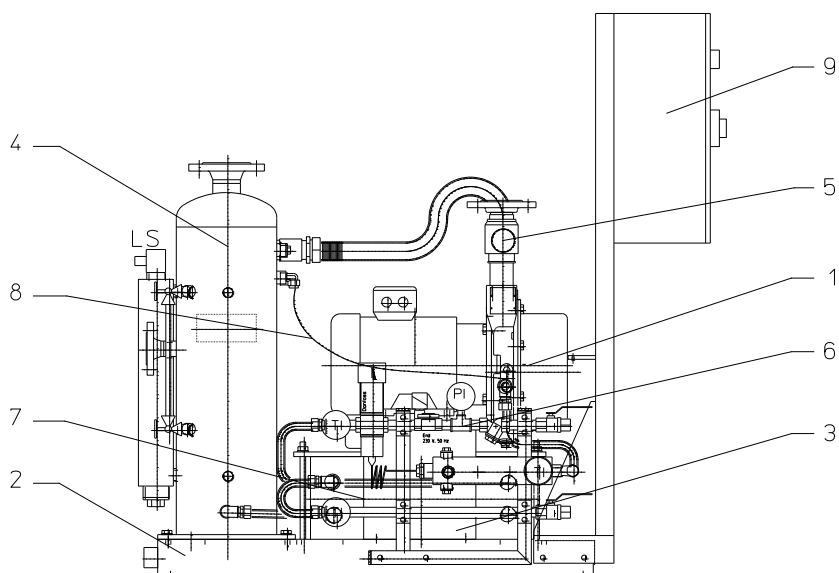


Example: PL 91 M.A.M 55 0.0A

#### NOTE

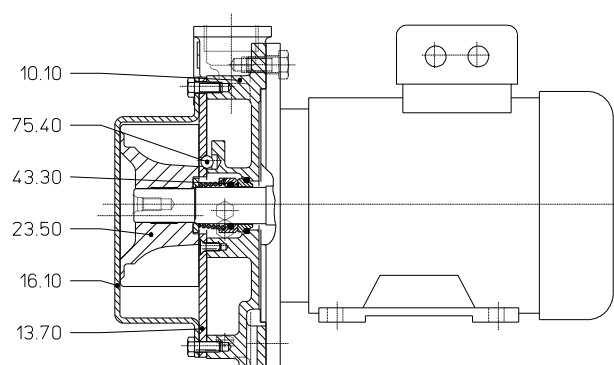
During its operation, the liquid ring vacuum pump must be continuously supplied with service liquid, normally water, in order to eliminate the heat resulting from the gas compression, and to prevent the pump from dry running operation. The service liquid is separated from the process gas in a separator. Dependent on the chosen arrangement and proposed application, the necessary service liquid can be either totally or partially recirculated within the system, conserving the amount of fresh make up liquid required. However, when using the total recirculated arrangement, the operating suction pressure must be 800 mbar or lower. The direction of rotation is clockwise when viewed from the drive end of the pump.

## Material design



Item	COMPONENTS	MATERIAL DESIGN		
		0A	MM	4B
1	Pump (see materials list of the pump)	0A	0A	4B
2	Base plate	steel lacquered	steel lacquered	steel lacquered
3	Pump carrier	steel, lacquered	steel lacquered	steel lacquered
4	Separator	steel, galvanized	1.4571	1.4571
5	Ball type non-return valve	brass / Perbunan	brass / Perbunan	1.4571 / PTFE
6	EMSR-technology, small fittings	brass / steel, galvanized / VA	brass / 1.4571	brass / 1.4571
7	Heat exchanger	1.4401 / Perbunan	1.4401 / Perbunan	1.4401 / Viton
8	Tube for protection against cavitation	synthetic material	synthetic material	1.4571
9	Electric control	steel plate, lacquered	steel plate, lacquered	steel plate, lacquered

## Material design of the pumps LEM 91, 126, 161



Item	COMPONENTS	MATERIAL DESIGN	
		0A	4B
10.10	Casing	0.6025	1.4408
13.70	Guide disk	1.4404	1.4404
16.10	Cover	1.4404	1.4404
23.50	Vane wheel impeller	2.0970.02	1.4517
43.30	Standard mechanical seal	Cr-steel / carbon / Perbunan	Cr-steel / carbon / Viton
75.40	Valve balls	polyamide A	PTFE

# SIHImodular - Construction types

for combined liquid service without heat exchanger



Example: PL 91 M.A.M 15 0.0A

**Vacuum compact system equipped with:**

- Manual service liquid regulation
  - Ball type non-return valve
  - Anti cavitation protection
  - Mounting feet of rubber or mounting rails
- Designation **M 10 0** (Low Cost-construction type)

**Additional options:**

- as above, but thermostatic service liquid regulation (regulating range 0 - 30 °C)  
Designation **M 15 0** (Base-construction type)
- as above, but with service liquid low level monitoring device for conductive liquids  
Designation **M 20 0** (High Class-construction type)
- as above, but with additional standard electric control  
Designation **M 25 0** (High End-construction type)

with plate heat exchanger (closed circuit)



Example: PL 161 M.A.M 50 0.0A

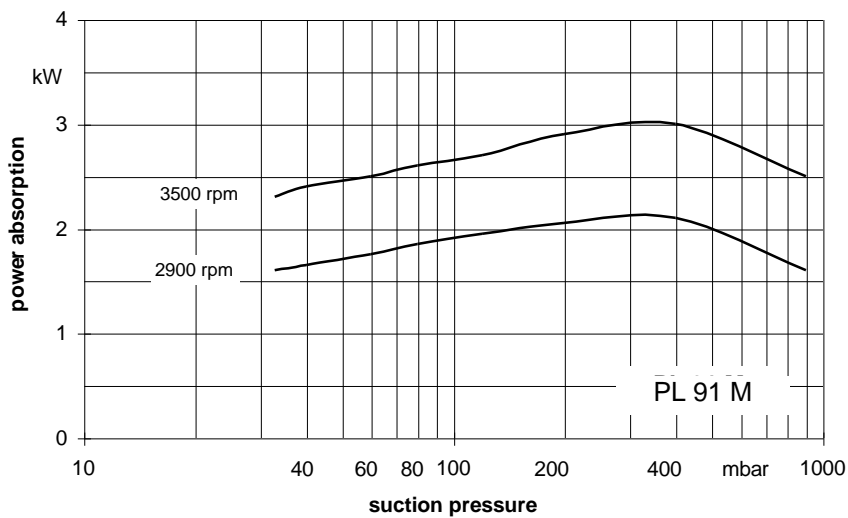
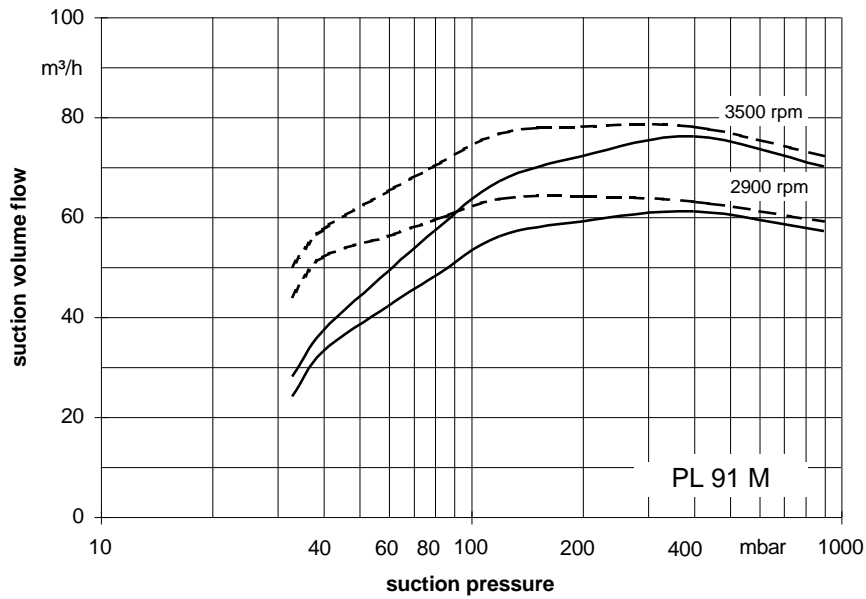
**Vacuum compact system equipped with:**

- Plate heat exchanger (screwed)
  - Thermometer between heat exchanger and pump
  - Ball type non-return valve
  - Anti cavitation protection
  - Mounting feet of rubber or mounting rails
- Designation **M 40 0** (Low Cost-construction type)

**Additional options:**

- as above, but with level dependent service liquid replenishing for conductive liquids  
Designation **M 45 0** (Base-construction type)
- as above, but with cooling water connection at the heat exchanger, thermostatically regulated (regulating range 0 - 30 °C).  
Designation **M 50 0** (High Class-construction type)
- as above, but with additional standard electric control  
Designation **M 55 0** (High End-construction type)

## Suction volume flow and power absorption PL 91 M

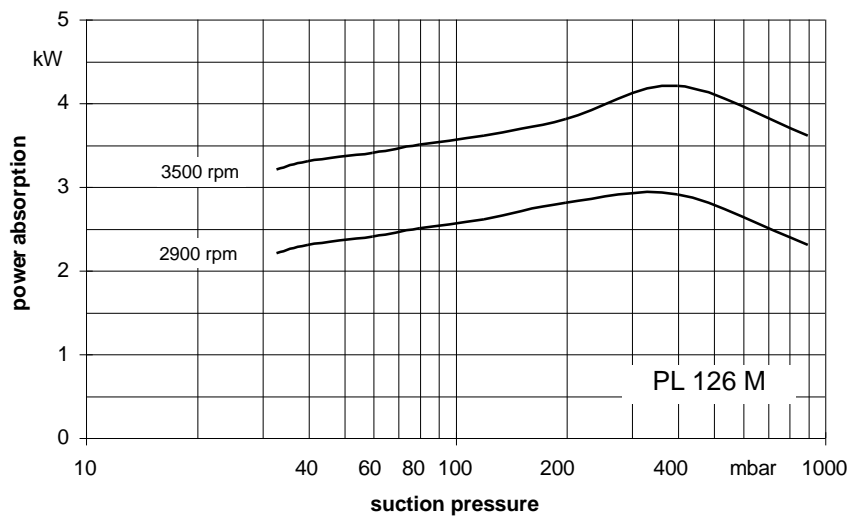
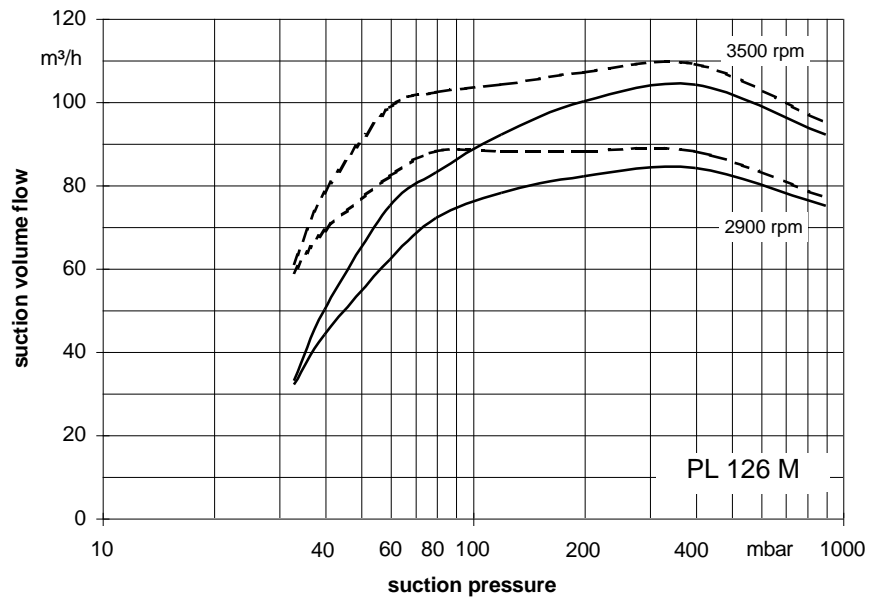


The operating data are applicable under the following conditions:

- pumping medium:
  - dry air: 20°C \_\_\_\_\_
  - water vapour saturated air: 20°C - - - - -
- service liquid:
  - water: 15°C \_\_\_\_\_

Discharge 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 PL 126 M



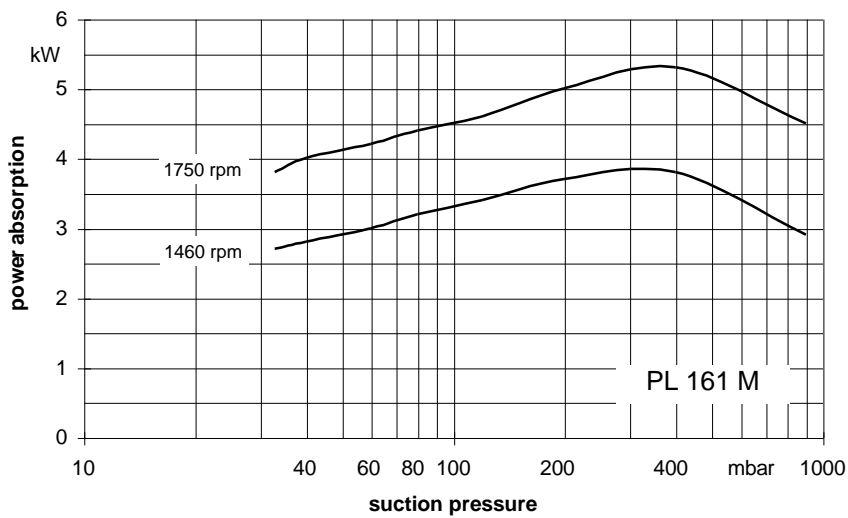
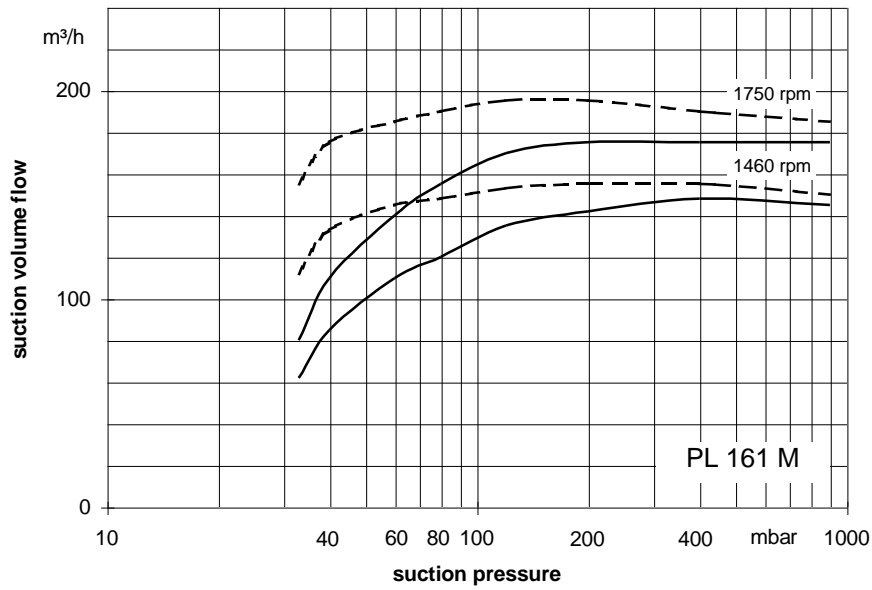
The operating data are applicable under the following conditions:

- pumping medium:                      - dry air:                                      20°C                      \_\_\_\_\_

   - water vapour saturated air:              20°C                      - - - - -
- service liquid:                              - water:                                      15°C

Discharge 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 PL 161 M



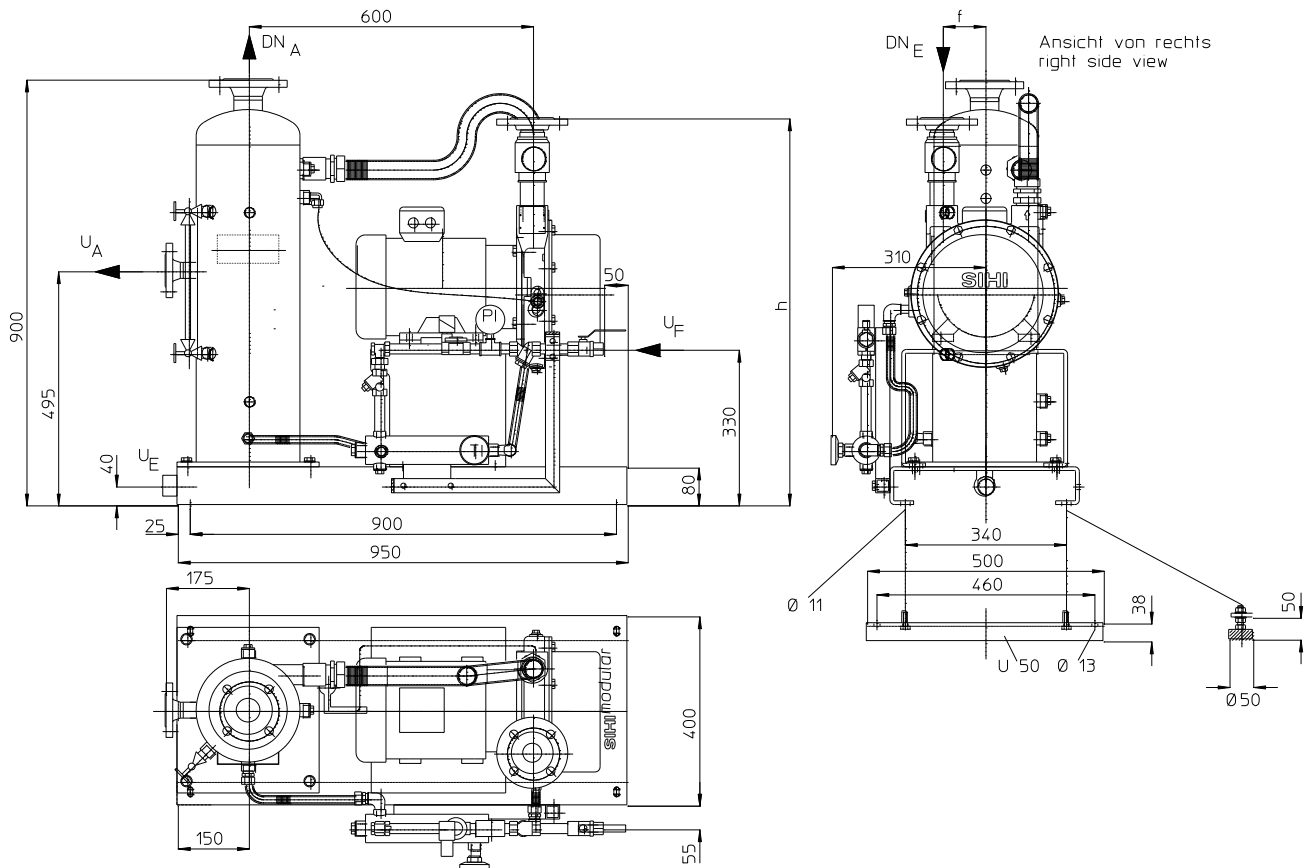
The operating data are applicable under the following conditions:

- pumping medium:
  - dry air: 20°C \_\_\_\_\_
  - water vapour saturated air: 20°C - - - - -
- service liquid:
  - water: 15°C \_\_\_\_\_

Discharge 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

# SIHI<sup>modular</sup> - for combined service liquid without heat exchanger

- Construction type **M 10 0** - Manual service liquid regulation  
 (Low Cost-construction type)
- Ball type non-return valve
  - Anti cavitation protection
  - Rubber mounting feet or mounting rails



## Dimensions

	electric motor IP 55		connection DN <sub>E</sub> gas inlet DIN 2501	connection DN <sub>A</sub> gas outlet DIN 2501	connection U <sub>A</sub> liquid drain DIN 2501	connection U <sub>E</sub> separator drain	connection U <sub>F</sub> fresh liquid	f mm	h mm	weight approx. kg	
	size	50 Hz kW									60 Hz kW
PL 91 M.A.	90 L	2,2	-	DN 32	DN 50	DN 25	G 1 a	G ½ i	55	740	128
PL 91 M.B.	100 L	-	3,3	DN 32	DN 50	DN 25	G 1 a	G ½ i	55	740	133
PL 126 M.A.	100 L	3,0	-	DN 32	DN 50	DN 25	G 1 a	G ½ i	55	740	133
PL 126 M.B.	112 M	-	4,8	DN 32	DN 50	DN 25	G 1 a	G ½ i	55	740	138
PL 161 M.A.	112 M	4,0	-	DN 40	DN 50	DN 25	G 1 a	G ½ i	90	785	161
PL 161 M.B.	132 M	-	6,0	DN 40	DN 50	DN 25	G 1 a	G ½ i	90	785	189

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

suction pressure [mbar]	Speed [rpm]	33					120					200					400				
		KB difference in temperature [°C]			FB	KB difference in temperature [°C]			FB	KB difference in temperature [°C]			FB	KB difference in temperature [°C]			FB				
		10	5	2		10	5	2		10	5	2		10	5	2					
PL 91 M.A.	2900	0,11	0,19	0,34	0,66	0,13	0,22	0,36	0,62	0,14	0,22	0,36	0,6	0,14	0,22	0,34	0,54				
PL 91 M.B.	3500	0,15	0,25	0,40		0,17	0,27	0,40		0,18	0,27	0,40		0,17	0,26	0,38					
PL 126 M.A.	2900	0,15	0,24	0,39	0,66	0,16	0,26	0,40	0,62	0,17	0,27	0,40	0,6	0,17	0,26	0,38	0,54				
PL 126 M.B.	3500	0,19	0,29	0,44		0,21	0,31	0,44		0,21	0,31	0,44		0,21	0,31	0,41					
PL 161 M.A.	1460	0,20	0,34	0,61	1,3	0,23	0,39	0,66	1,2	0,25	0,41	0,66	1,14	0,24	0,39	0,60	0,96				
PL 161 M.B.	1750	0,26	0,43	0,72		0,30	0,48	0,75		0,31	0,49	0,74		0,31	0,47	0,68					

FB = fresh service liquid

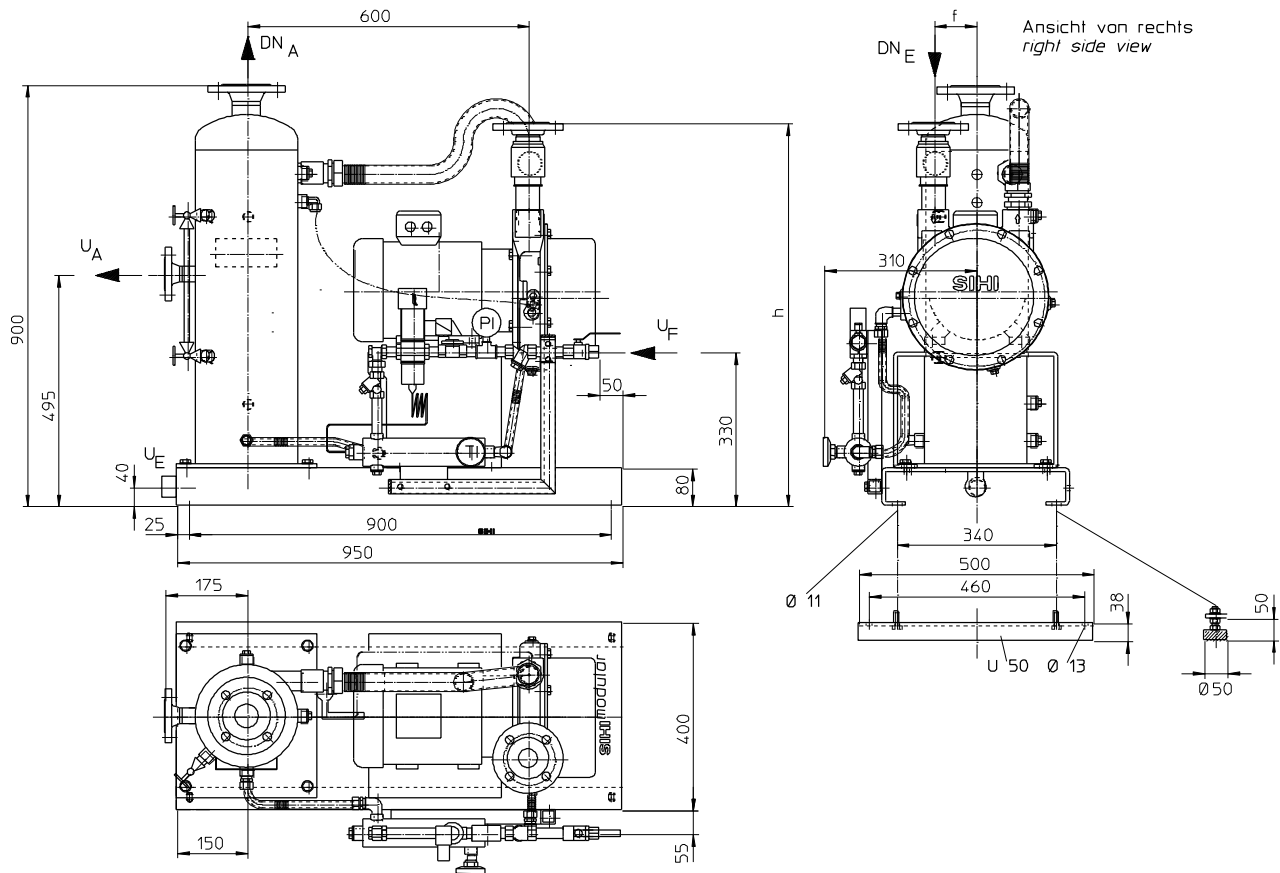
KB = combined service liquid with service water 10 °C, 5 °C, 2 °C warmer than the fresh water.

# SIHImodular - for combined service liquid without heat exchanger

Construction type **M 15 0** - Thermostatic service liquid regulation (0 - 30 °C)

(Base-construction type)

- Ball type non-return valve
- Anti cavitation protection
- Rubber mounting feet or mounting rails



## Dimensions

	E-Motor IP 55		connection DN <sub>E</sub> gas inlet DIN 2501	connection DN <sub>A</sub> gas outlet DIN 2501	connection U <sub>A</sub> liquid drain DIN 2501	connection U <sub>E</sub> separator drain	connection U <sub>F</sub> fresh liquid	f mm	h mm	weight approx. kg		
	size	kW										
PL 91 M.A.	90 L	2,2	50 Hz	60 Hz	DN 32	DN 50	DN 25	G 1 a	G ½ i	55	740	129
PL 91 M.B.	100 L	-	3,3	DN 32	DN 50	DN 25	G 1 a	G ½ i	55	740	134	
PL 126 M.A.	100 L	3,0	-	DN 32	DN 50	DN 25	G 1 a	G ½ i	55	740	134	
PL 126 M.B.	112 M	-	4,8	DN 32	DN 50	DN 25	G 1 a	G ½ i	55	740	139	
PL 161 M.A.	112 M	4,0	-	DN 40	DN 50	DN 25	G 1 a	G ½ i	90	785	163	
PL 161 M.B.	132 M	-	6,0	DN 40	DN 50	DN 25	G 1 a	G ½ i	90	785	191	

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

suction pressure [mbar]	speed [rpm]	33			FB	120			FB	200			FB	400			FB
		KB				KB				KB				KB			
		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	
PL 91 M.A.	2900	0,11	0,19	0,34	0,66	0,13	0,22	0,36	0,62	0,14	0,22	0,36	0,6	0,14	0,22	0,34	0,54
PL 91 M.B.	3500	0,15	0,25	0,40		0,17	0,27	0,40		0,18	0,27	0,40		0,17	0,26	0,38	
PL 126 M.A.	2900	0,15	0,24	0,39	0,66	0,16	0,26	0,40	0,62	0,17	0,27	0,40	0,6	0,17	0,26	0,38	0,54
PL 126 M.B.	3500	0,19	0,29	0,44		0,21	0,31	0,44		0,21	0,31	0,44		0,21	0,31	0,41	
PL 161 M.A.	1460	0,20	0,34	0,61	1,3	0,23	0,39	0,66	1,2	0,25	0,41	0,66	1,14	0,24	0,39	0,60	0,96
PL 161 M.B.	1750	0,26	0,43	0,72		0,30	0,48	0,75		0,31	0,49	0,74		0,31	0,47	0,68	

FB = fresh service liquid

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



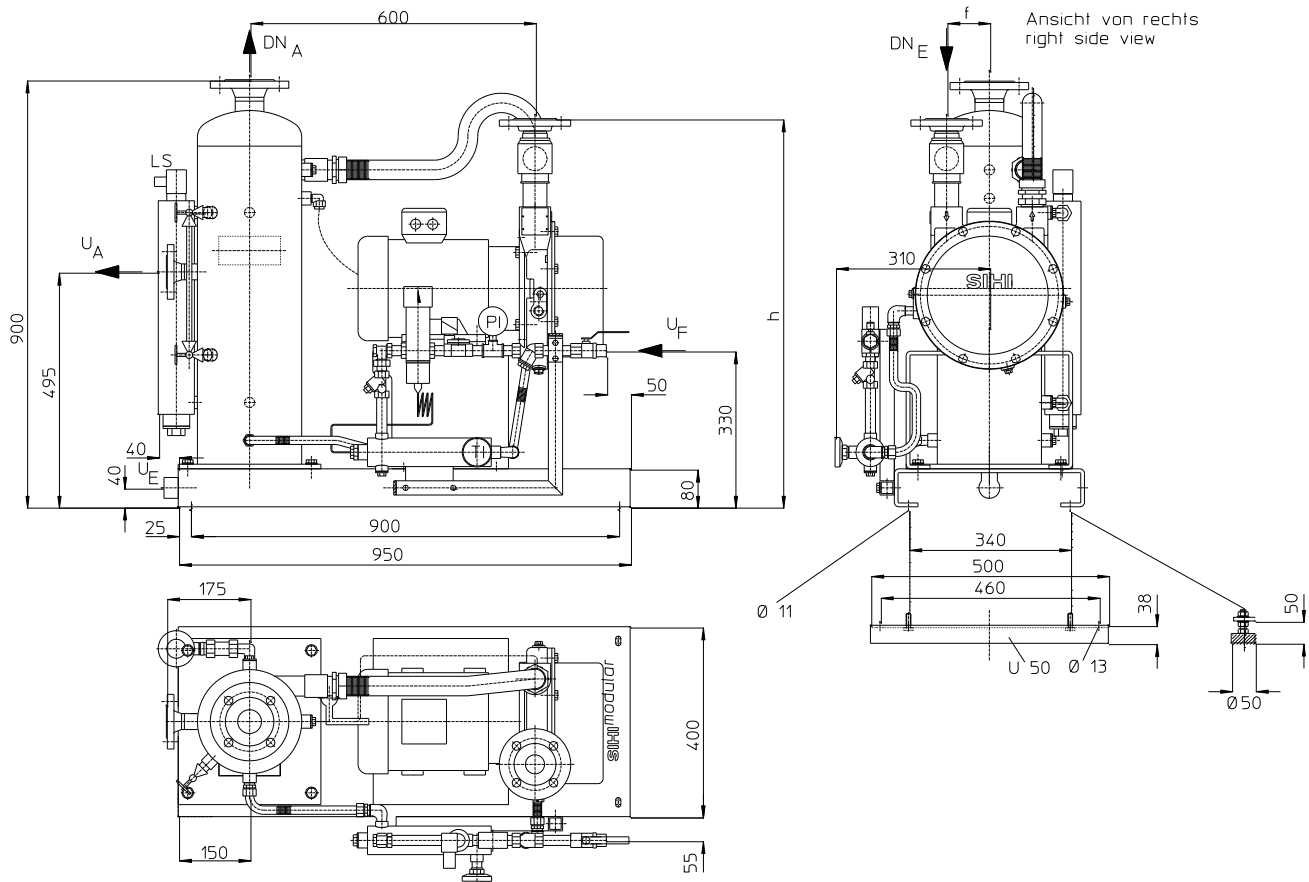


# SIHImodular - for combined service liquid without heat exchanger

Construction type **M 20 0** - Thermostatic service liquid regulation (0 - 30 °C)

(High Class-construction type)

- Ball type non-return valve
- Anti cavitation protection
- Rubber mounting feet or mounting rails
- Additional service liquid low level monitoring device for conductive liquids



## Dimensions

	size	E-Motor IP 55		connection DN <sub>E</sub> gas inlet DIN 2501	connection DN <sub>A</sub> gas outlet DIN 2501	connection U <sub>A</sub> liquid drain DIN 2501	connection U <sub>E</sub> separator drain	connection U <sub>F</sub> fresh liquid	f mm	h mm	weight approx. kg
		50 Hz	60 Hz								
PL 91 M.A.	90 L	2,2	-	DN 32	DN 50	DN 25	G 1 a	G ½ i	55	740	133
PL 91 M.B.	100 L	-	3,3	DN 32	DN 50	DN 25	G 1 a	G ½ i	55	740	138
PL 126 M.A.	100 L	3,0	-	DN 32	DN 50	DN 25	G 1 a	G ½ i	55	740	138
PL 126 M.B.	112 M	-	4,8	DN 32	DN 50	DN 25	G 1 a	G ½ i	55	740	143
PL 161 M.A.	112 M	4,0	-	DN 40	DN 50	DN 25	G 1 a	G ½ i	90	785	167
PL 161 M.B.	132 M	-	6,0	DN 40	DN 50	DN 25	G 1 a	G ½ i	90	785	195

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

suction pressure [mbar]	speed [rpm]	33				FB	120				FB	200				FB	400				FB	
		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		10	5	2		
PL 91 M.A.	2900	0,11	0,19	0,34	0,66	0,13	0,22	0,36	0,62	0,14	0,22	0,36	0,6	0,14	0,22	0,34	0,54					
PL 91 M.B.	3500	0,15	0,25	0,40		0,17	0,27	0,40		0,18	0,27	0,40		0,17	0,26	0,38						
PL 126 M.A.	2900	0,15	0,24	0,39	0,66	0,16	0,26	0,40	0,62	0,17	0,27	0,40	0,6	0,17	0,26	0,38	0,54					
PL 126 M.B.	3500	0,19	0,29	0,44		0,21	0,31	0,44		0,21	0,31	0,44		0,21	0,31	0,41						
PL 161 M.A.	1460	0,20	0,34	0,61	1,3	0,23	0,39	0,66	1,2	0,25	0,41	0,66	1,14	0,24	0,39	0,60	0,96					
PL 161 M.B.	1750	0,26	0,43	0,72		0,30	0,48	0,75		0,31	0,49	0,74		0,31	0,47	0,68						

FB = fresh service liquid

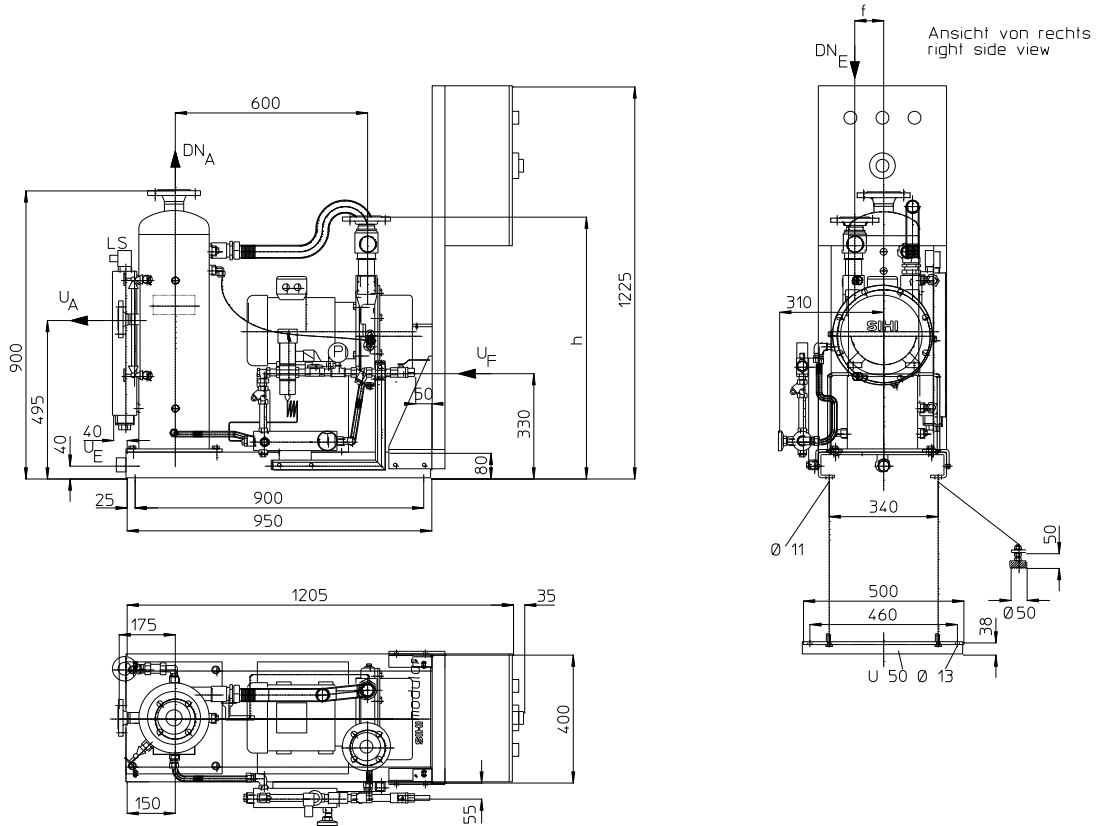
KB = combined service liquid with service water 10 °C, 5 °C, 2 °C warmer than the fresh water..

# SIHI<sup>modular</sup> - for combined service liquid without heat exchanger

Construction type **M 25 0** - Thermostatic service liquid regulation (0 - 30 °C)

(High End-construction type)

- Ball type non-return valve
- Anti cavitation protection
- Rubber mounting feet or mounting rails
- Additional service liquid low level monitoring device for conductive liquids
- Additional standard electric control, steel plate enclosed



## Dimensions

	size	E-Motor IP 55 kW		connection DN <sub>E</sub> gas inlet DIN 2501	connection DN <sub>A</sub> gas outlet DIN 2501	connection U <sub>A</sub> liquid drain DIN 2501	connection U <sub>E</sub> separator drain	connection U <sub>F</sub> fresh liquid	f mm	h mm	weight approx. kg
		50 Hz	60 Hz								
PL 91 M.A.	90 L	2,2	-	DN 32	DN 50	DN 25	G 1 a	G ½ i	55	740	173
PL 91 M.B.	100 L	-	3,3	DN 32	DN 50	DN 25	G 1 a	G ½ i	55	740	178
PL 126 M.A.	100 L	3,0	-	DN 32	DN 50	DN 25	G 1 a	G ½ i	55	740	178
PL 126 M.B.	112 M	-	4,8	DN 32	DN 50	DN 25	G 1 a	G ½ i	55	740	183
PL 161 M.A.	112 M	4,0	-	DN 40	DN 50	DN 25	G 1 a	G ½ i	90	785	207
PL 161 M.B.	132 M	-	6,0	DN 40	DN 50	DN 25	G 1 a	G ½ i	90	785	235

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

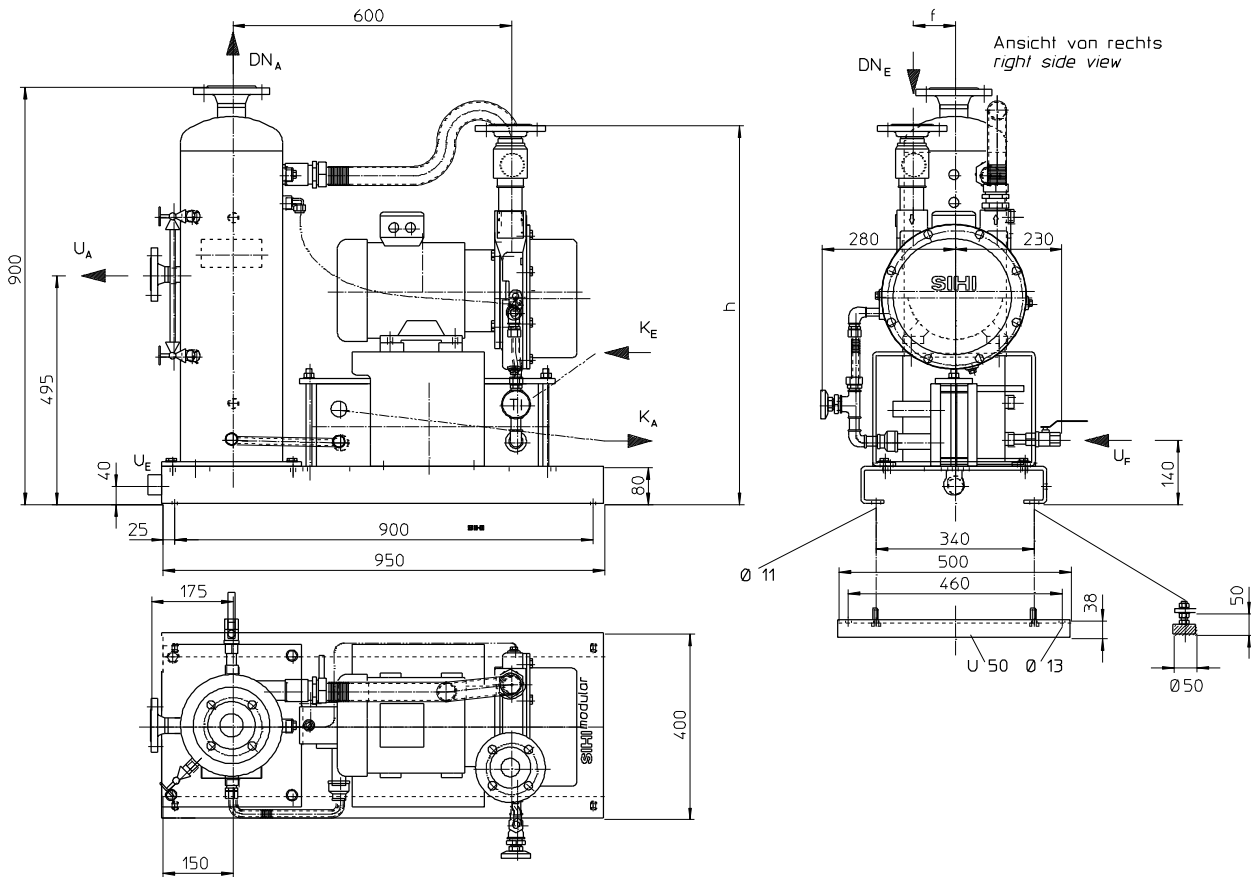
suction pressure [mbar]	speed [rpm]	33				120				200				400			
		KB			FB	KB			FB	KB			FB	KB			FB
		difference in temperature [°C]				difference in temperature [°C]				difference in temperature [°C]				difference in temperature [°C]			
		10	5	2		10	5	2		10	5	2		10	5	2	
PL 91 M.A.	2900	0,11	0,19	0,34	0,66	0,13	0,22	0,36	0,62	0,14	0,22	0,36	0,6	0,14	0,22	0,34	0,54
PL 91 M.B.	3500	0,15	0,25	0,40		0,17	0,27	0,40		0,18	0,27	0,40		0,17	0,26	0,38	
PL 126 M.A.	2900	0,15	0,24	0,39	0,66	0,16	0,26	0,40	0,62	0,17	0,27	0,40	0,6	0,17	0,26	0,38	0,54
PL 126 M.B.	3500	0,19	0,29	0,44		0,21	0,31	0,44		0,21	0,31	0,44		0,21	0,31	0,41	
PL 161 M.A.	1460	0,20	0,34	0,61	1,3	0,23	0,39	0,66	1,2	0,25	0,41	0,66	1,14	0,24	0,39	0,60	0,96
PL 161 M.B.	1750	0,26	0,43	0,72		0,30	0,48	0,75		0,31	0,49	0,74		0,31	0,47	0,68	

FB = fresh service liquid

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

# SIHImodular - with plate heat exchanger (closed circuit)

- Construction type **M 40 0** with:
- Plate heat exchanger (screwed)
  - Thermometer between heat exchanger and pump
  - Ball type non-return valve
  - Anti cavitation protection
  - Rubber mounting feet or mounting rails



## Dimensions

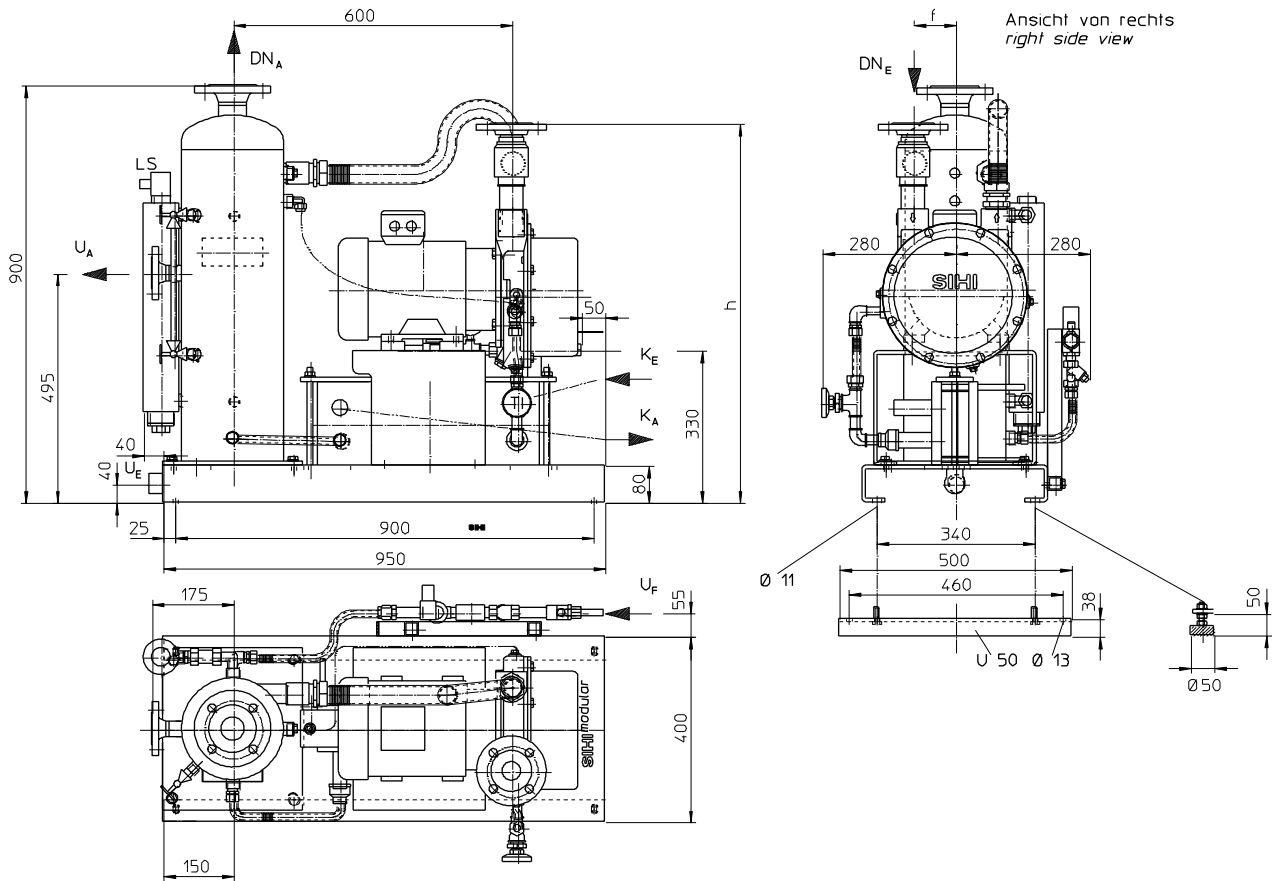
	electric motor size	IP 55 kW		connection DN <sub>E</sub> gas inlet	connection DN <sub>A</sub> gas outlet	connection U <sub>A</sub> liquid drain	connection U <sub>E</sub> separator	connection U <sub>F</sub> fresh	connection K <sub>E</sub> cold water	connection K <sub>A</sub> cold water	f mm	h mm	weight approx. kg
		50 Hz	60 Hz										
PL 91 M.A.	90 L	2,2	-	DN 32	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	55	740	161
PL 91 M.B.	100 L	-	3,3	DN 32	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	55	740	166
PL 126 M.A.	100 L	3,0	-	DN 32	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	55	740	166
PL 126 M.B.	112 M	-	4,8	DN 32	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	55	740	171
PL 161 M.A.	112 M	4,0	-	DN 40	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	90	785	194
PL 161 M.B.	132 M	-	6,0	DN 40	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	90	785	222

## Cooling liquid data for the cold side of the heat exchanger

	Cooling liquid	Inlet temperature [°C]	Outlet temperature [°C]	Flow rate [m³/h]	Pressure loss [bar]
PL 91 M.A.	water	12	15	0,9	0,4
PL 91 M.B.	water	12	15	1,0	0,4
PL 126 M.A.	water	12	15	1,0	0,4
PL 126 M.B.	water	12	15	1,1	0,5
PL 161 M.A.	water	12	15	1,7	0,9
PL 161 M.B.	water	12	15	1,9	1,1

# SIHI<sup>modular</sup> - with plate heat exchanger (closed circuit)

- Construction type **M 45 0** with: - Plate heat exchanger (screwed)  
 (Base-construction type) - Thermometer between heat exchanger and pump  
 - Ball type non-return valve  
 - Anti cavitation protection  
 - Rubber mounting feet or mounting rails  
 - Additional service liquid replenishing for conductive liquids, level dependent



## Dimensions

	electric motor IP 55		connection DN <sub>E</sub> gas inlet	connection DN <sub>A</sub> gas outlet	connection U <sub>A</sub> liquid drain	connection U <sub>E</sub> separator	connection U <sub>F</sub> fresh	connection K <sub>E</sub> cold water	connection K <sub>A</sub> cold water outlet	f mm	h mm	weight approx. kg
	size	50 kW Hz										
PL 91 M.A.	90 L	2,2	-	DN 32	DN 50	DN 25	G 1 a	G ½ i	G ½ i	55	740	170
PL 91 M.B.	100 L	-	3,3	DN 32	DN 50	DN 25	G 1 a	G ½ i	G ½ i	55	740	175
PL 126 M.A.	100 L	3,0	-	DN 32	DN 50	DN 25	G 1 a	G ½ i	G ½ i	55	740	175
PL 126 M.B.	112 M	-	4,8	DN 32	DN 50	DN 25	G 1 a	G ½ i	G ½ i	55	740	180
PL 161 M.A.	112 M	4,0	-	DN 40	DN 50	DN 25	G 1 a	G ½ i	G ½ i	90	785	204
PL 161 M.B.	132 M	-	6,0	DN 40	DN 50	DN 25	G 1 a	G ½ i	G ½ i	90	785	232

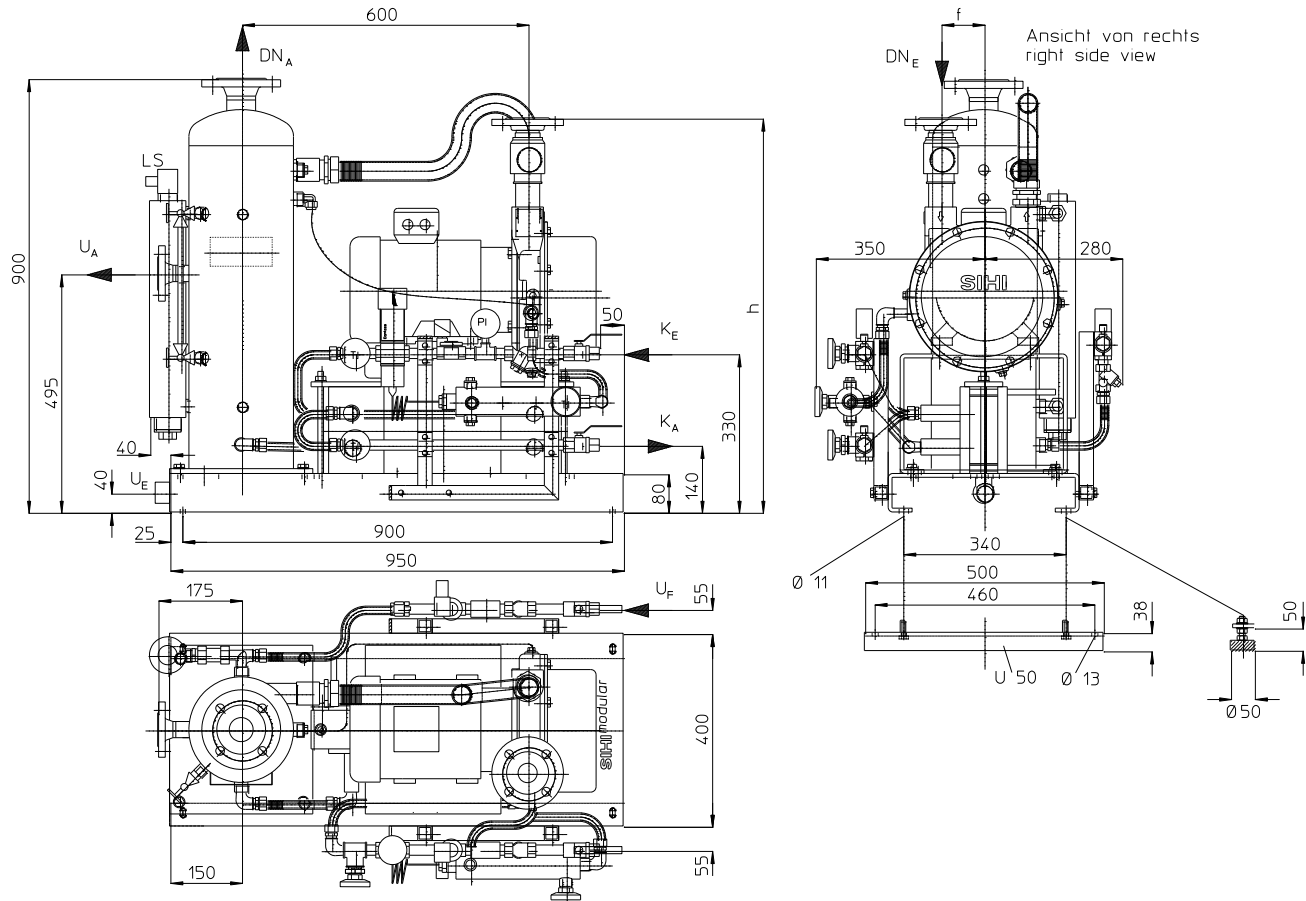
## Cooling liquid data for the cold side of the heat exchanger

	Cooling liquid	Inlet temperature [°C]	Outlet temperature [°C]	Flow rate [m³/h]	Pressure loss [bar]
PL 91 M.A.	water	12	15	0,9	0,4
PL 91 M.B.	water	12	15	1,0	0,4
PL 126 M.A.	water	12	15	1,0	0,4
PL 126 M.B.	water	12	15	1,1	0,5
PL 161 M.A.	water	12	15	1,7	0,9
PL 161 M.B.	water	12	15	1,9	1,1

# SIHImodular - with plate heat exchanger (closed circuit)

Construction type **M 50 0** with:  
(High Class-construction type)

- Plate heat exchanger (screwed)
- Thermometer between heat exchanger and pump
- Ball type non-return valve
- Anti cavitation protection
- Rubber mounting feet or mounting rails
- Additional service liquid replenishing for conductive liquids, level dependent
- Additional cooling water connection at the heat exchanger, thermostatically regulated (0 - 30 °C)



## Dimensions

	electric motor IP 55		connection DN <sub>E</sub>	connection DN <sub>A</sub>	connection U <sub>A</sub>	connection U <sub>E</sub>	connection U <sub>F</sub>	connection K <sub>E</sub>	connection K <sub>A</sub>	f	h	weight approx kg	
	size	kW											
		50 Hz	60 Hz	gas inlet DIN 2501	gas outlet DIN 2501	liquid drain DIN 2501	separator drain	fresh liquid	cold water inlet	cold water outlet	mm	mm	
PL 91 M.A.	90 L	2,2	-	DN 32	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	55	740	182
PL 91 M.B.	100 L	-	3,3	DN 32	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	55	740	187
PL 126 M.A.	100 L	3,0	-	DN 32	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	55	740	187
PL 126 M.B.	112 M	-	4,8	DN 32	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	55	740	192
PL 161 M.A.	112 M	4,0	-	DN 40	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	90	785	216
PL 161 M.B.	132 M	-	6,0	DN 40	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	90	785	244

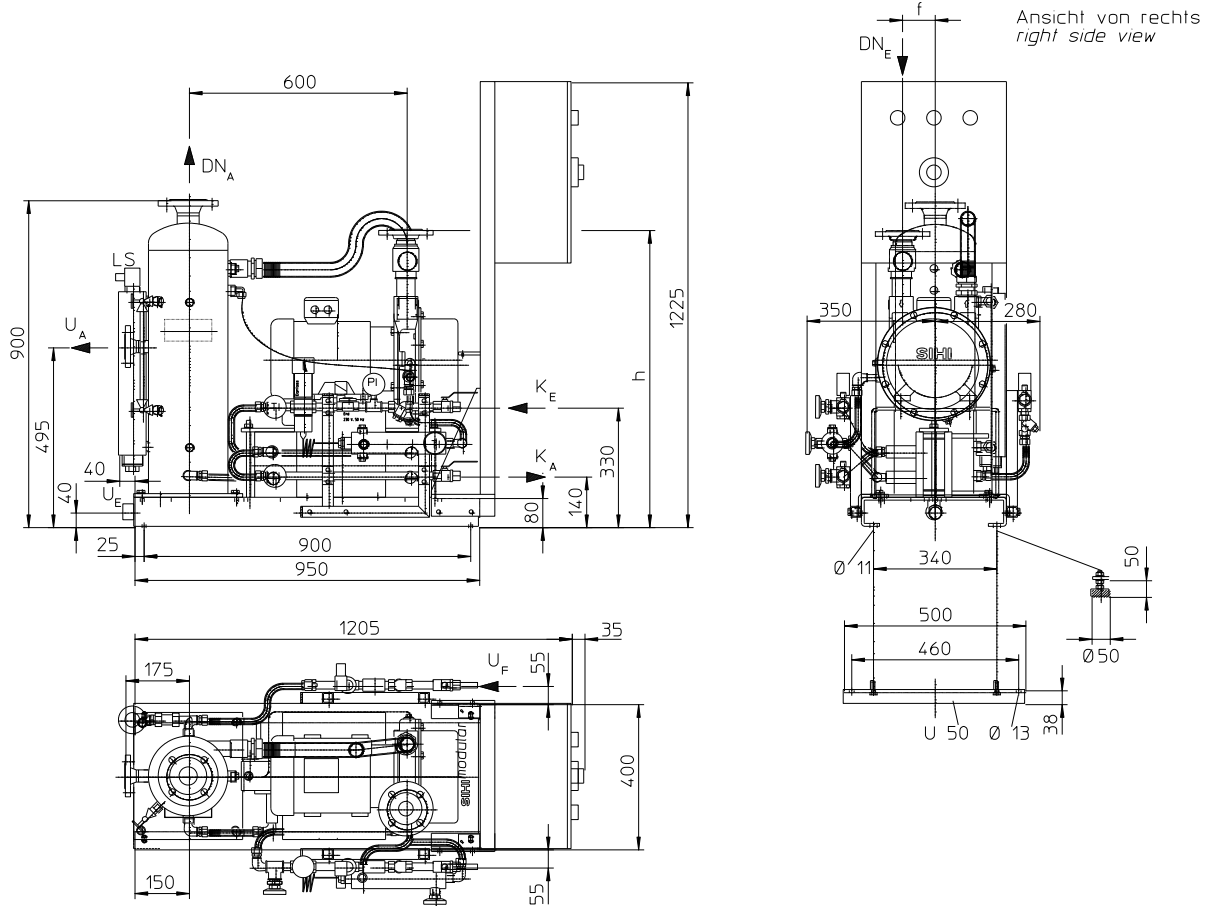
**Cooling liquid data** for the cold side of the heat exchanger, incl. allowance for pressure loss by installed fittings

	Cooling liquid	Inlet temperature [°C]	Outlet temperature [°C]	Flow rate [m³/h]	Pressure loss [bar]
PL 91 M.A.	water	12	15	0,9	0,9
PL 91 M.B.	water	12	15	1,0	0,9
PL 126 M.A.	water	12	15	1,0	0,9
PL 126 M.B.	water	12	15	1,1	1,0
PL 161 M.A.	water	12	15	1,7	1,4
PL 161 M.B.	water	12	15	1,9	1,6

# SIHI<sup>modular</sup> - with plate heat exchanger (closed circuit)

Construction type **M 55 0** with:  
(High End-construction type)

- Plate heat exchanger (screwed)
- Thermometer between heat exchanger and pump
- Ball type non-return valve
- Anti cavitation protection
- Rubber mounting feet or mounting rails
- Additional service liquid replenishing for conductive liquids, level dependent
- Additional cooling water connection at the heat exchanger, thermostatically regulated (0 - 30 °C)
- Additional standard electric control, steel plate enclosed



## Dimensions

	electric motor IP 55		connection DN <sub>E</sub>	connection DN <sub>A</sub>	connection U <sub>A</sub>	connection U <sub>E</sub>	connection U <sub>F</sub>	connection K <sub>E</sub>	connection K <sub>A</sub>	f	h	weight approx kg	
	size	kW											
	50 Hz	60 Hz											
PL 91 M.A.	90 L	2,2	-	DN 32	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	55	740	222
PL 91 M.B.	100 L	-	3,3	DN 32	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	55	740	227
PL 126 M.A.	100 L	3,0	-	DN 32	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	55	740	227
PL 126 M.B.	112 M	-	4,8	DN 32	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	55	740	232
PL 161 M.A.	112 M	4,0	-	DN 40	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	90	785	256
PL 161 M.B.	132 M	-	6,0	DN 40	DN 50	DN 25	G 1 a	G ½ i	G ½ i	G ½ i	90	785	284

**Cooling liquid data** for the cold side of the heat exchanger, incl. allowance for pressure loss by installed fittings

	Cooling liquid	Inlet temperature [°C]	Outlet temperature [°C]	Flow rate [m³/h]	Pressure loss [bar]
PL 91 M.A.	water	12	15	0,9	0,9
PL 91 M.B.	water	12	15	1,0	0,9
PL 126 M.A.	water	12	15	1,0	0,9
PL 126 M.B.	water	12	15	1,1	1,0
PL 161 M.A.	water	12	15	1,7	1,4
PL 161 M.B.	water	12	15	1,9	1,6

## Explanation of the type code

Series	Pump	Mains frequency	Design	Material design
91 126 161	LEM• 91 AZ AAE 0A O ** LEM• 126 AZ AAE 0A O ** LEM• 161 AZ AAE 0A O ** ** see motor selection table	A 50 Hz B 60 Hz	M 10 0 to see page 3 M 55 0	see page 2
<b>PL</b>	<b>91 M</b> <b>126 M</b> <b>161 M</b>	<b>A</b> <b>B</b>	<b>M 10 0</b> <b>M 15 0</b> <b>M 20 0</b> <b>M 25 0</b> <b>M 40 0</b> <b>M 45 0</b> <b>M 50 0</b> <b>M 55 0</b>	<b>0A</b> <b>MM</b> <b>4B</b>

## Motor selection table

		Motor enclosure IP 55 50 Hz					Motor enclosure IP 55 60 Hz				
		Y-voltage V +/- 5%	Δ-voltage V +/- 5%	power kW	size	motor design.	Y-voltage V +/- 5%	Δ-voltage V +/- 5%	power kW	size	motor design.
PL	91	346-440	200-254	2,2	90 L	HW	346-480	200-277	3,3	100 L	JW
PL	126	346-440	200-254	3,0	100 L	FW	346-480	200-277	4,8	112 M	GW
PL	161	660-725	380-420	4,0	112 M	FW	660-725	380-480	6,0	132 M	GW

## Remarks:

Standard systems will be supplied with solenoid valve coils 230 V, 50 Hz and upon special request with coils 24 V DC, without extra price.  
Level monitoring devices need a supply voltage of 230 V, 50 Hz and upon special request with coils 24 V DC, without extra price.  
The mentioned standard electric controls are equipped with a separate control transformer 400 / 230 V, 50 Hz.

Systems for other voltages and frequencies available on request.

Other material combinations upon request.

Level monitoring devices for non-conductive liquids upon request.

## Accessories:

Suitable system accessories are available:

- **Gas ejector, type GEV 91 A / GEV 126 A and GEV 161 A** for a service liquid temperature of **15 °C**
- **Gas ejector, type GEV 91 B / GEV 126 B and GEV 161 B** for a service liquid temperature of **30 °C**
- **Preseparator** with flushing and draining connection for the separation of solids at suction side.
- **Ball valve** for draining of the separator.

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

## Sterling SIHI GmbH

Lindenstrasse 170, D-25524 Itzehoe, Germany  
Telephone +49 (0) 4821 / 771-01, Fax +49 (0) 4821 / 771-274