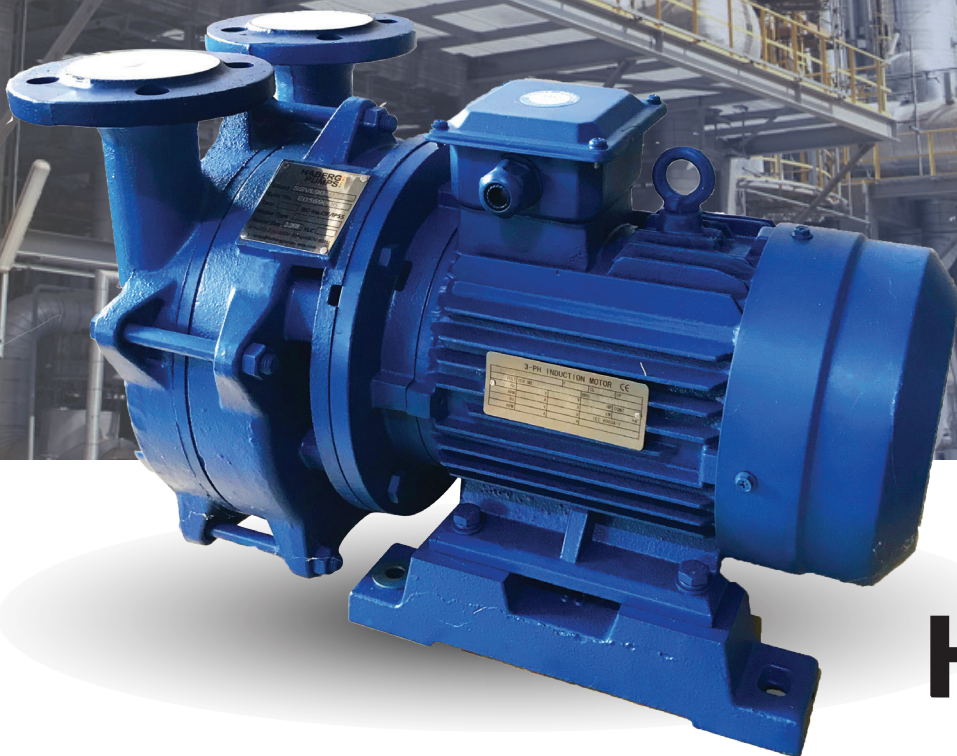


SSVM 25 - 425 Liquid Ring Vacuum Pump Single-Stage



HABERG[®]
PUMPS

LIQUID RING VACUUM PUMPS



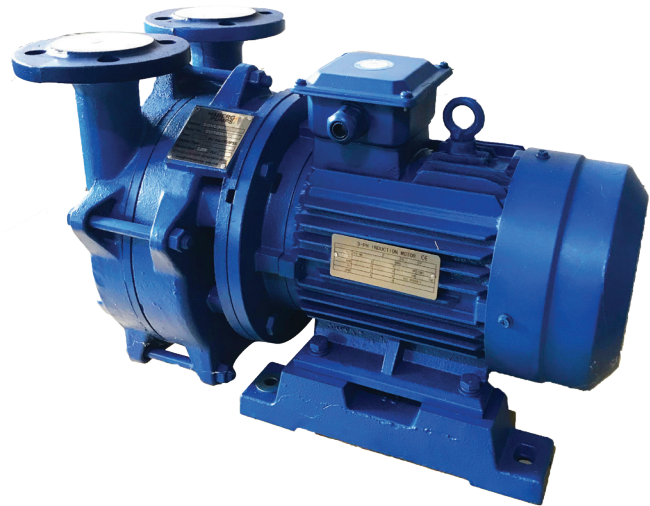
Single stage in close coupled design

SSVM 25, 50

SSVM / SSVL 90, 125, 150, 250, 325, 425

TECHNICAL DATA

Pressure range:	33 ~ 1013 mbar
Suction volume:	24 ~ 470 m ³ /h
Speed (rpm):	3000/1500 (50Hz) or 3600/1750 (60Hz)
Temperature (Max.):	200 oC (DD/gas) 100 oC (Saturated gas)
Design standard:	DIN2501 (PN10)
Shaft sealing:	Mechanical seal



DESIGN

SSVM / SSVL liquid ring vacuum pumps are single stage.

During operation the pump must be supplied continuously 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. This liquid can be separated from the gas in a liquid separator (see last page) and reused.

The pumps are equipped with a connection through which the contaminated service liquid can be drained continuously during operation (dirt drain), if necessary.

The direction of rotation is clockwise, when looking from the motor towards the pump.

CONSTRUCTION

SSVM / SSVL liquid ring vacuum pumps are displacement pumps with uncomplicated and robust construction.

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 33 to 900 mbar must be generated.

FEATURES

- Nearly isothermal compression
- Oil-free, as no lubrication in the working chamber therefore non-polluting
- Capable of 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
- Wide choice of materials, therefore applicable nearly everywhere
- Shaft not in contact with the medium
- Protection against cavitation as standard
- Incorporated dirt drain
- No metallic contact of the rotating parts

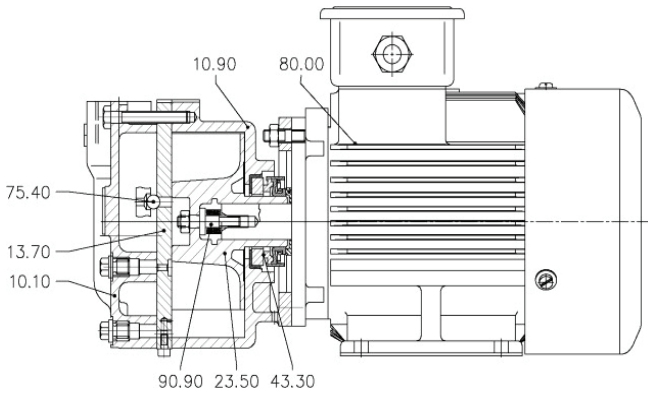
Pump type		Unit	SSVM		SSVM / SSVL					
			25	50	90	125	150	250	325	425
Synchronous speed	50 Hz 60 HZ	rpm	3000 3500		1500 1750					
Max. compression over atmospheric pressure		bar	0.3							
Max. admissible pressure difference		bar	1.1							
Test pressure above atmospheric pressure		bar	1		3					
Moment of inertia of the rotating pump parts and water filling		kg · m ²	0.003	0.0095	0.035	0.053	0.069	0.097	0.14	0.21
Noise level at a suction pressure of 80 mbar		dB (A)	68	69	72			76	78	
Max. gas temperature	Dry gas	°C	200							
	Saturated gas	°C	100							
Service liquid max. recommended temperature for water as working liquid		°C	40							
max. admissible temperature for other suitable working liquids		°C	80							
max. kinematic viscosity		mm ² /s	4							
max. density		kg/m ³	1200							
volume up to shaft level		liter	0.3	0.4	2.4	2.8	3.2	4.0	4.2	4.7

The combination of several limiting values is not admissible.

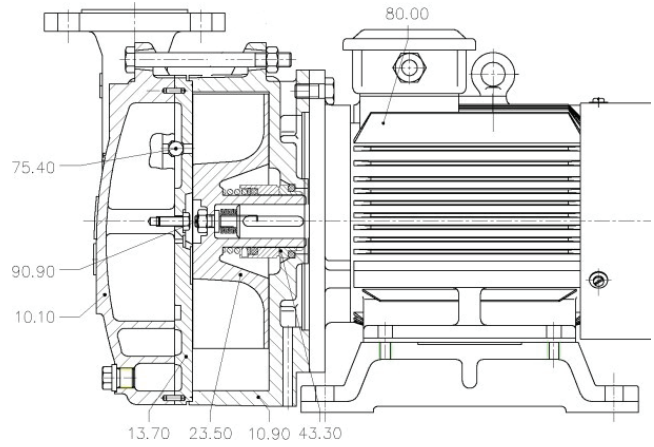
Material design

Material Design		C250S304SM	C250S316SM	QS304SM	QS316SM
Pump Type	SSVM 25,50	√	√	√	√
	SSVM 90,125,150	√	√	√	√
	or SSVL 250	√	√	√	√
	SSVL 325,425	√	√	√	√
Item	Component	Material			
10.10	Casing	HT200	HT200	HT200	HT200
10.90	Central body	HT250	HT250	QT400-15	QT400-15
13.70	Guide disc	HT200	HT200	HT200	HT200
23.50	Vane wheel impeller	304	316	304	316
43.30	Mechanical seal	X : Ceramic S : SiC A : Carbon V : Viton		P : Buna N (NBR) M : PTFE encapsulated F : 304 G : 316	

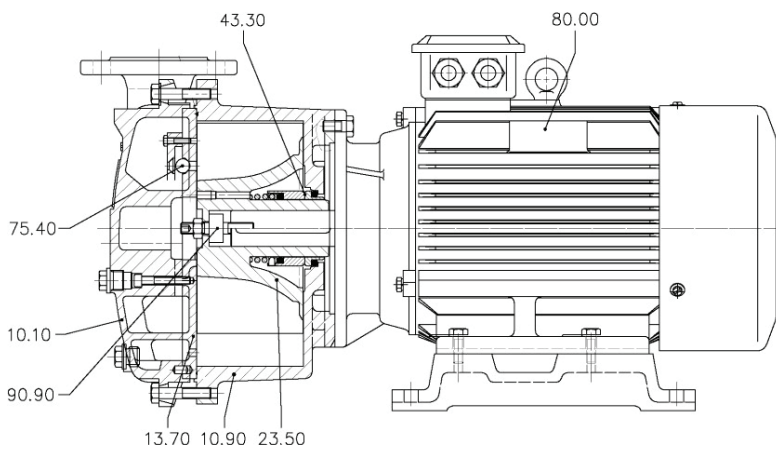
SSVM 25, 50



SSVM 90, 125, 150

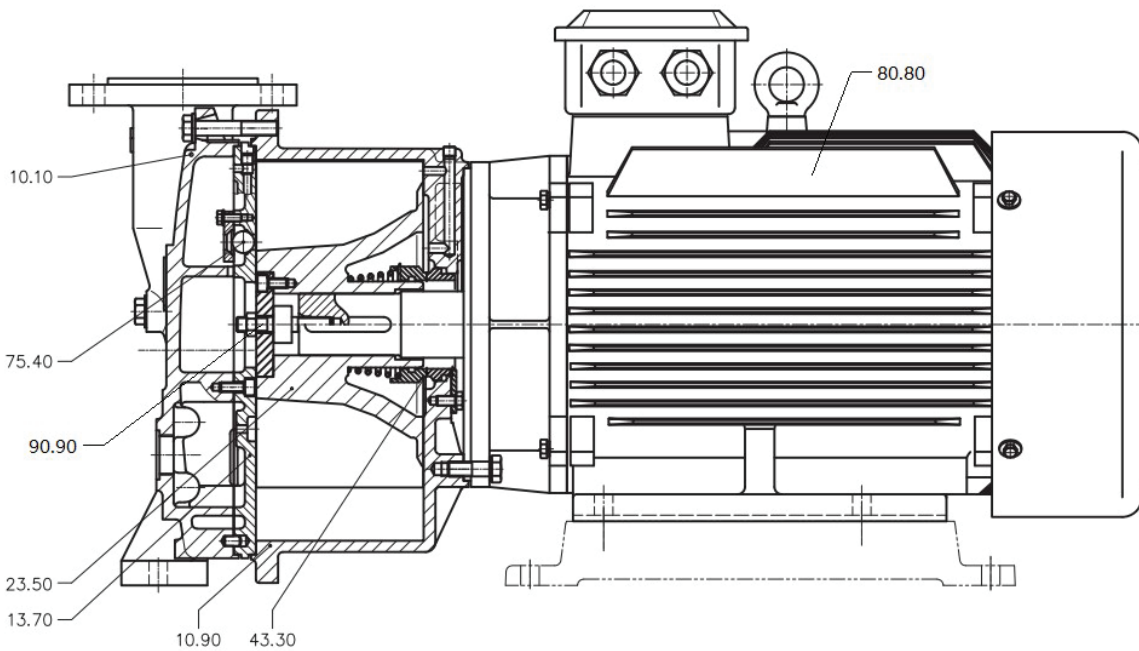


SSVM 250



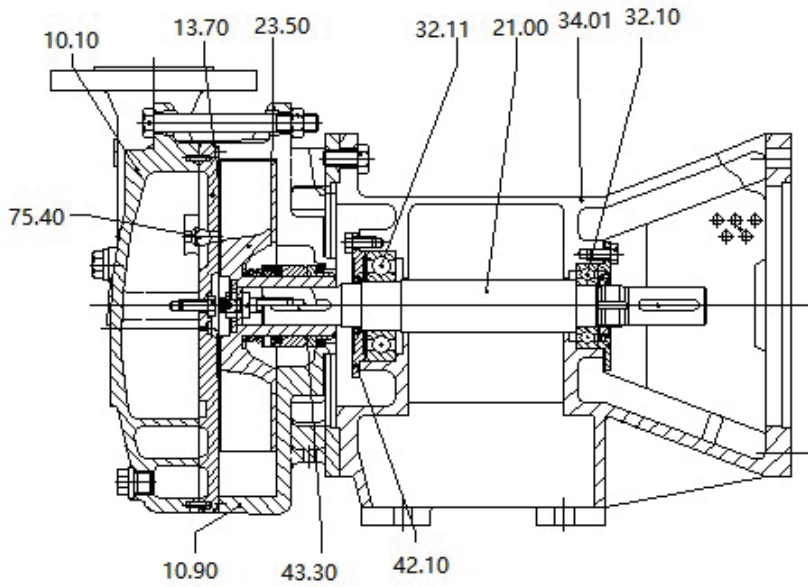
10.10	Casing
13.70	Guide disc
10.90	Central body
23.50	Vane wheel impeller
80.00	Motor
43.30	Mechanical seal
75.40	Valve balls
90.90	Adjust screw

SSVM 325, 425



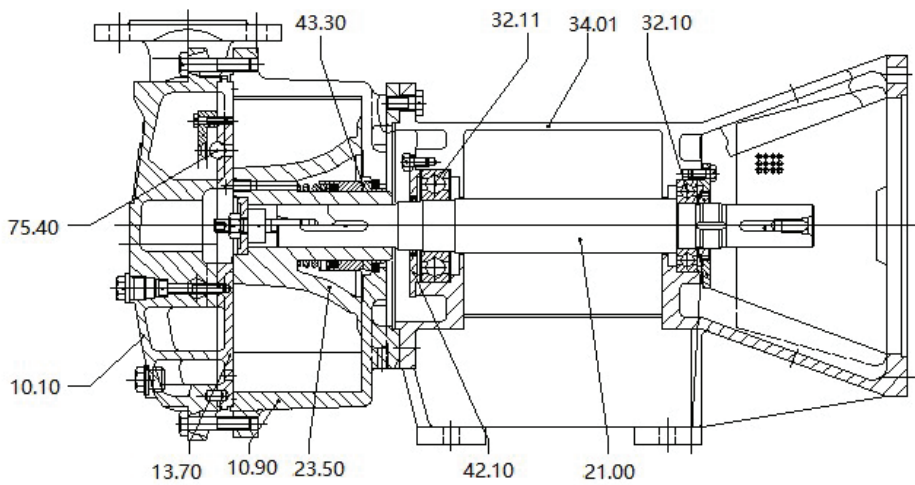
SECTIONAL DRAWINGS

SSVL 90, 125, 150



10.10	Vacuum Casing
10.90	Central body
13.70	Guide disc
21.00	Shaft
23.50	Vane wheel impeller
34.01	Motor Carrier
43.30	Mechanical seal
75.40	Valve balls
32.10	Ball bearing
32.11	Ball bearing
42.10	Bearing cover

SSVL 250



SSVL 325, 425

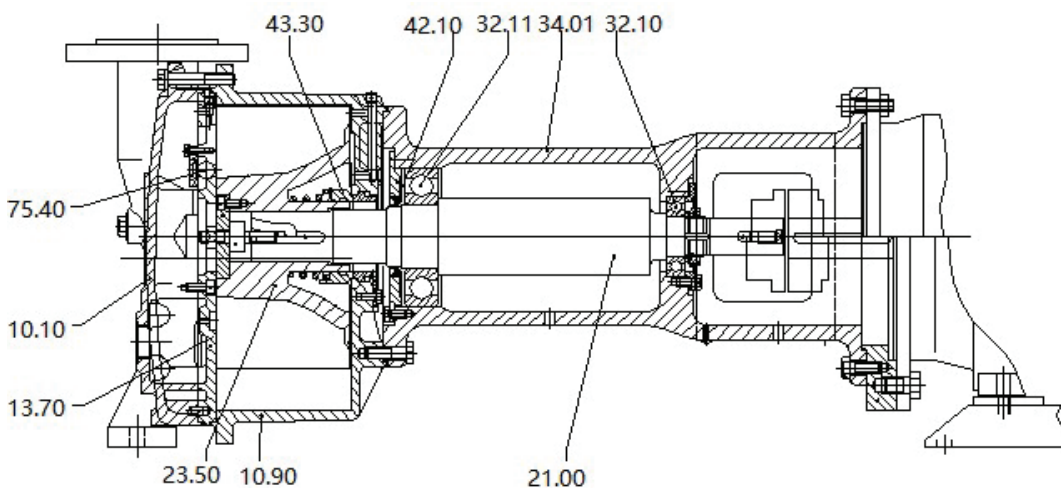
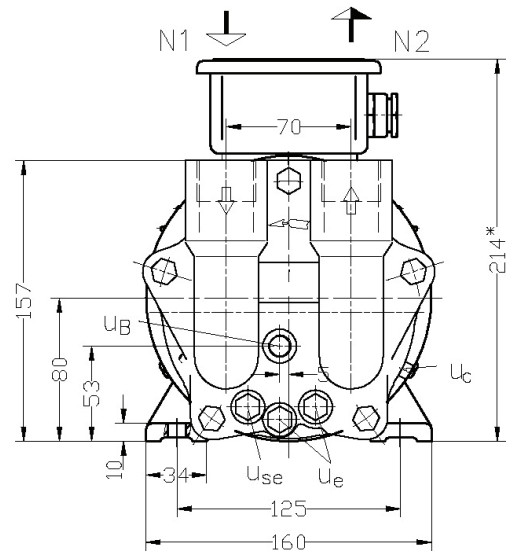
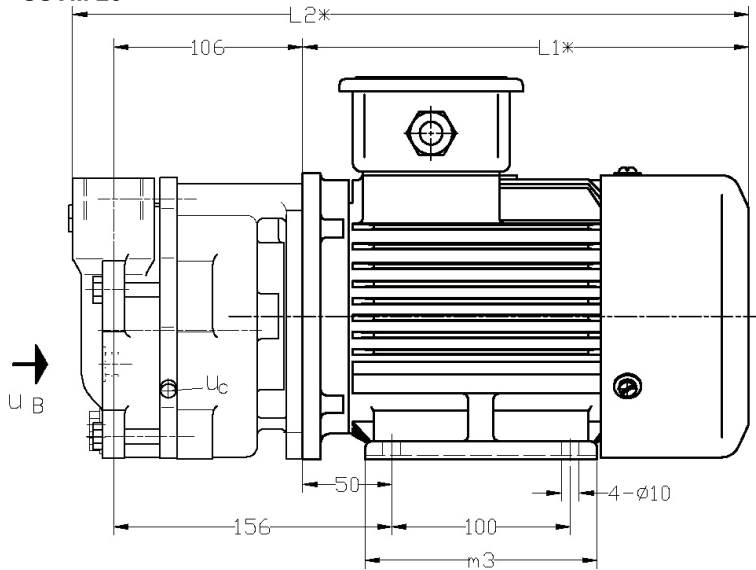


TABLE OF DIMENSIONS AND WEIGHTS

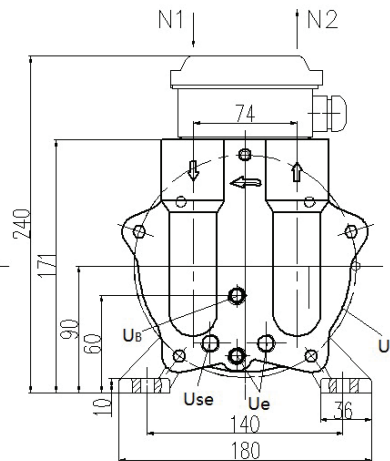
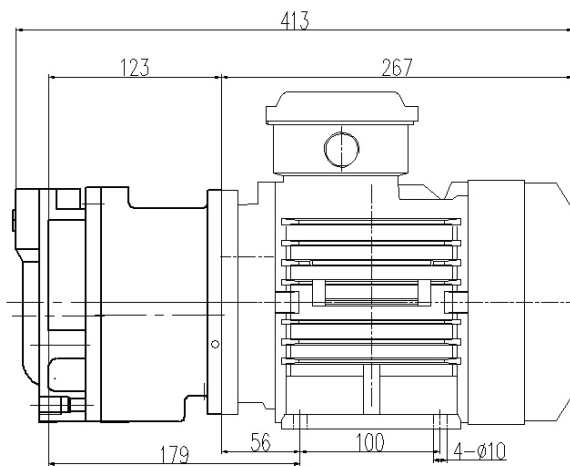
SSVM 25



Pump	Electric motor IP55,2P		L1	L2	m3	Approx weight (kg)	
	size	kW 50Hz				Motor	Pump+ Motor
SSVM 25	80M1	0.75	251	380	130	14	23.5

- N 1 = gas inlet G 1
- N 2 = gas outlet G 1
- U_B = connection for service liquid G ¼
- U_c = connection for protection against cavitation M5
- U_e = drain connection G ¼
- U_{se} = connection for dirt drain G ¼

SSVM 50



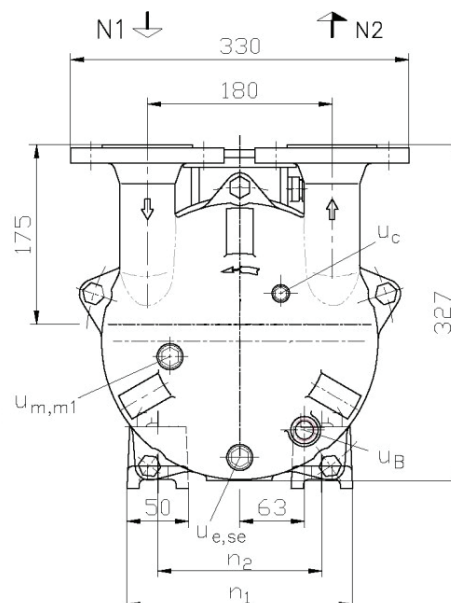
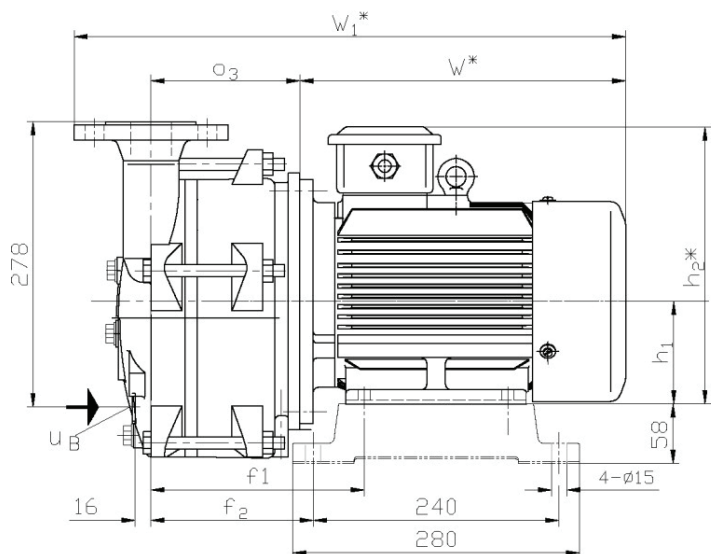
Pump	Electric motor IP55,2P		Approx. weight (kg)	
	size	kW 50Hz	Motor	Pump+ Motor
SSVM 50	90S-2	1.5	20	30

- N 1 = gas inlet G 1
- N 2 = gas outlet G 1
- U_B = connection for service liquid G ¼
- U_c = connection for protection against cavitation M5
- U_e = drain connection G ¼
- U_{se} = connection for dirt drain G ¼

Dimensions and weights are valid for standard motors used by manufacturer

TABLE OF DIMENSIONS AND WEIGHTS

SSVM 90,125,150



N 1 = gas inlet DN 40

N 2 = gas outlet DN 40

u_B = connection for service liquid G ½

u_c = connection for protection against cavitation G ¼

u_e = drain connection G ¾

u_{se} = Connection for dirt drain G ¾

u_m = connection for pressure gauge G ¾

u_{m1} = connection for drain valve G ¾

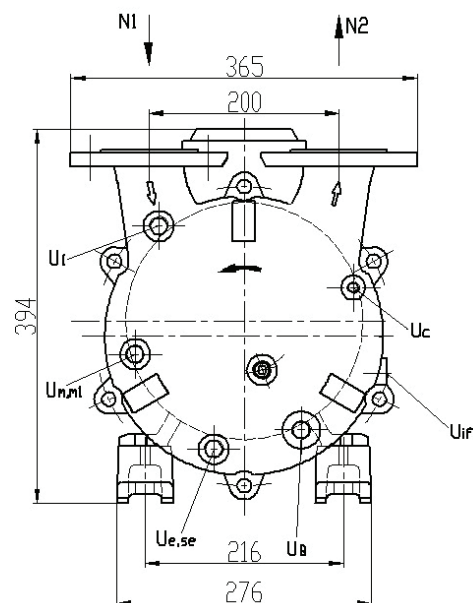
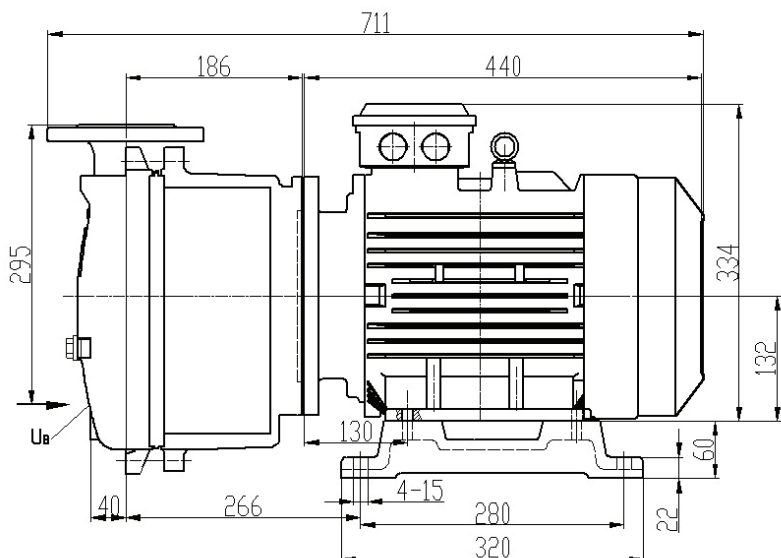
Pump	motor IP 55,50Hz,4P		h ₁	h ₂	f ₁	f ₂	n ₁	n ₂	w*	W ₁ *	o ₃	Approx weight (kg)	
	Size	kW										Motor	Pump+ motor
SSVM 90	100L1	2.2	100	265	199	149	220	160	312	523	136	31	70.2
SSVM125	100L2	3.0	100	265	208	158	220	160	312	532	145	36	78.2
SSVM150	112M	4.0	112	294	225	175	250	190	340	577	162	41	89

Motor feet are part of the standard supply of SSVM 90-150

Dimensions and weights are valid for standard motors used by manufacturer

TABLE OF DIMENSIONS AND WEIGHTS

SSVM 250



- | | | | | | |
|----------------|---|--|-----------------|---|---|
| N 1 | = | gas inlet DN 50 | u _e | = | drain connection G ³ / ₈ |
| N 2 | = | gas outlet DN 50 | u _{se} | = | connection for dirt drain G ³ / ₈ |
| u _B | = | connection for service liquid G ¹ / ₂ | u _m | = | connection for pressure gauge G ³ / ₈ |
| u _c | = | connection for protection against cavitation G ¹ / ₄ | u _{m1} | = | connection for drain valve G ³ / ₈ |
| Uif | = | adjusting screw for internal liquid return G ³ / ₈ | u _l | = | Connection for relief valve G ³ / ₈ |

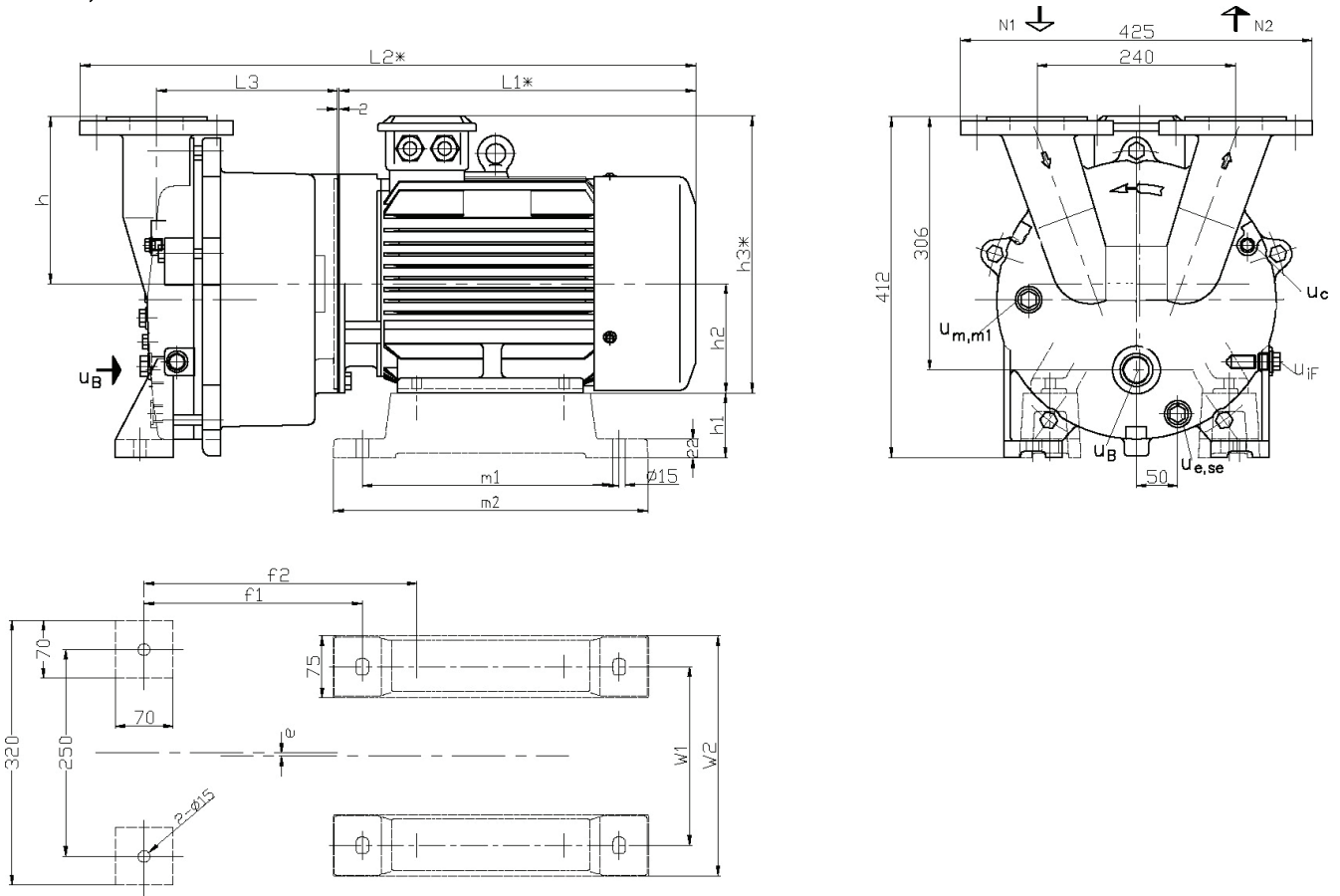
Pump	Electric motor IP55,50Hz,4P		Approx. weight (kg)	
	size	kW	Motor	Pump+ Motor
		50Hz		
SSVM250	132 S	5.5	60	117.65

Motor feet are part of the standard supply of SSVM 250

Dimensions and weights are valid for standard motors used by manufacturer

TABLE OF DIMENSIONS AND WEIGHTS

SSVM 325, 425



Pump	electric motor IP 55																weight abt.	
	Size	KW 50hz	e	f ₁	f ₂	m ₁	m ₂	h	h ₁	h ₂	h ₃ *	w ₁	w ₂	L ₃	L ₁ *	L ₂ *	Motor	Pump+Motor
SSVM 325	132 M	7.5	4	269	324	310	370	200	78	132	335	216	252	219	457	771	74	153
SSVM 425	160 M	11	6	303	363	375	415	200	50	160	400	254	334	233	507	835	108	187

N 1 = gas inlet DN 65

N 2 = gas outlet DN 65

U_B = connection for service liquid G 1

U_c = connection for protection against cavitation G ¼

U_e = drain connection G ½

U_{se} = connection for dirt drain G ½

U_m = connection for pressure gauge G ½

U_{m1} = connection for drain valve G ½

U_{iF} = adjusting screw for internal liquid return

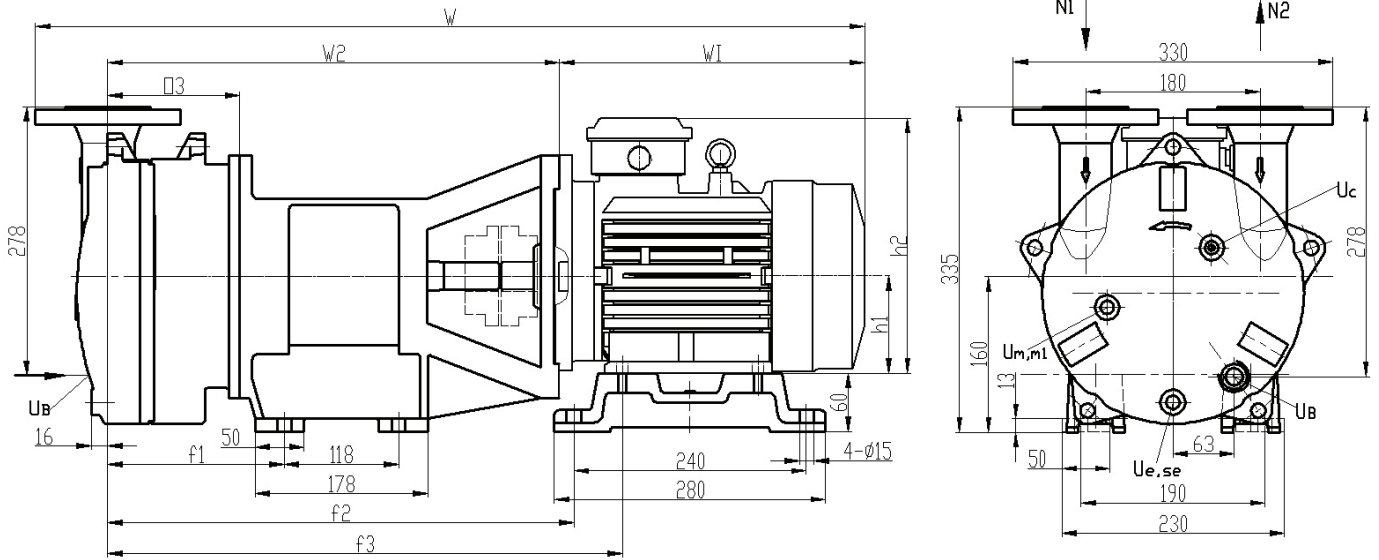
U_i = Connection for relief valve G¹/₄

Motor feet are part of the standard supply of SSVM 325 , 425

Dimensions and weights are valid for standard motors used by manufacturer

TABLE OF DIMENSIONS AND WEIGHTS

SSVL 90, 125, 150



N 1 = gas inlet DN 40

N 2 = gas outlet DN 40

u_B = connection for service liquid G ½

u_c = connection for protection against cavitation G ¼

u_e = drain connection G ¾

u_{se} = Connection for dirt drain G ¾

u_m = connection for pressure gauge G ¾

u_{m1} = connection for drain valve G ¾

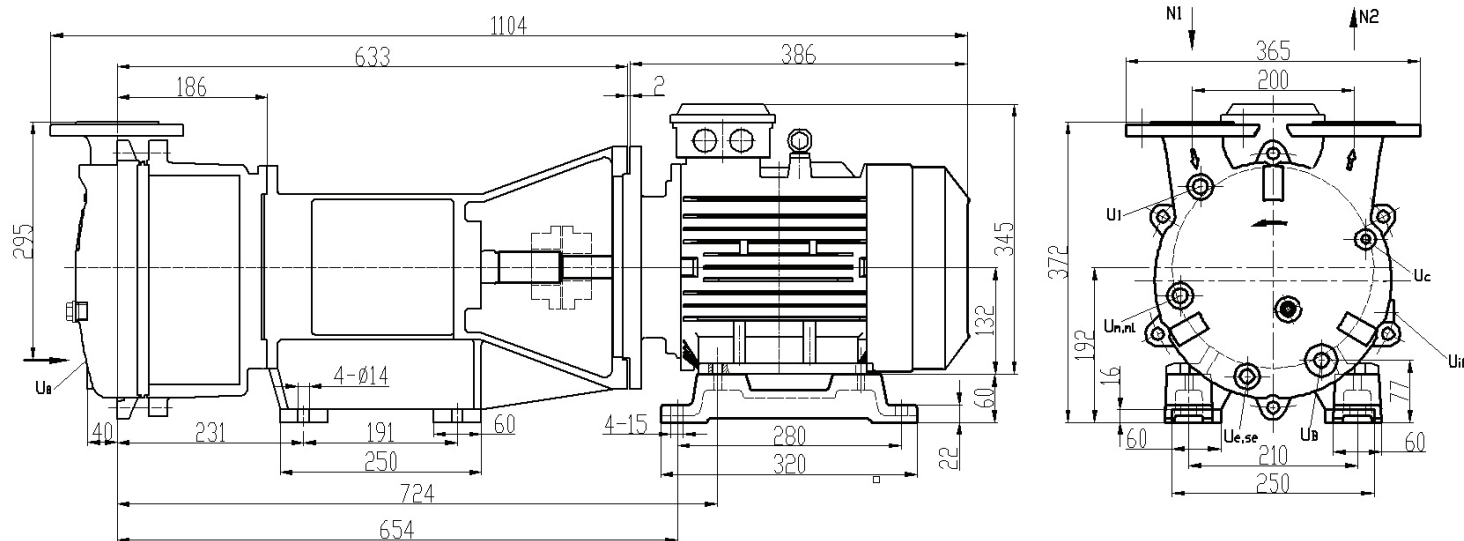
Pump	motor IP55, 50Hz,4P		f1	f2	f3	h ₁	h ₂	w1	W2	W	o ₃	Approx weight (kg)	
	Size	kW										Motor	Pump+ motor
SSVL 90	100L1	2.2	182	479	529	100	270	321	466	862	136	31	101
SSVL 125	100L2	3.0	191	488	538	100	270	321	475	871	145	36	109
SSVL 150	112M	4.0	208	512	562	112	300	336	492	903	162	41	120

Motor feet are part of the standard supply of SSVL90-150

Dimensions and weights are valid for standard motors used by manufacturer

TABLE OF DIMENSIONS AND WEIGHTS

SSVL 250



- | | | | | | |
|-----------------|---|--|-----------------|---|---|
| N 1 | = | gas inlet DN 50 | U _e | = | drain connection G ³ / ₈ |
| N 2 | = | gas outlet DN 50 | U _{se} | = | connection for dirt drain G ³ / ₈ |
| U _B | = | connection for service liquid G ¹ / ₂ | U _m | = | connection for pressure gauge G ³ / ₈ |
| U _c | = | connection for protection against cavitation G ¹ / ₄ | U _{m1} | = | connection for drain valve G ³ / ₈ |
| U _{if} | = | adjusting screw for internal liquid return G ³ / ₈ | U _l | = | Connection for relief valve G ³ / ₈ |

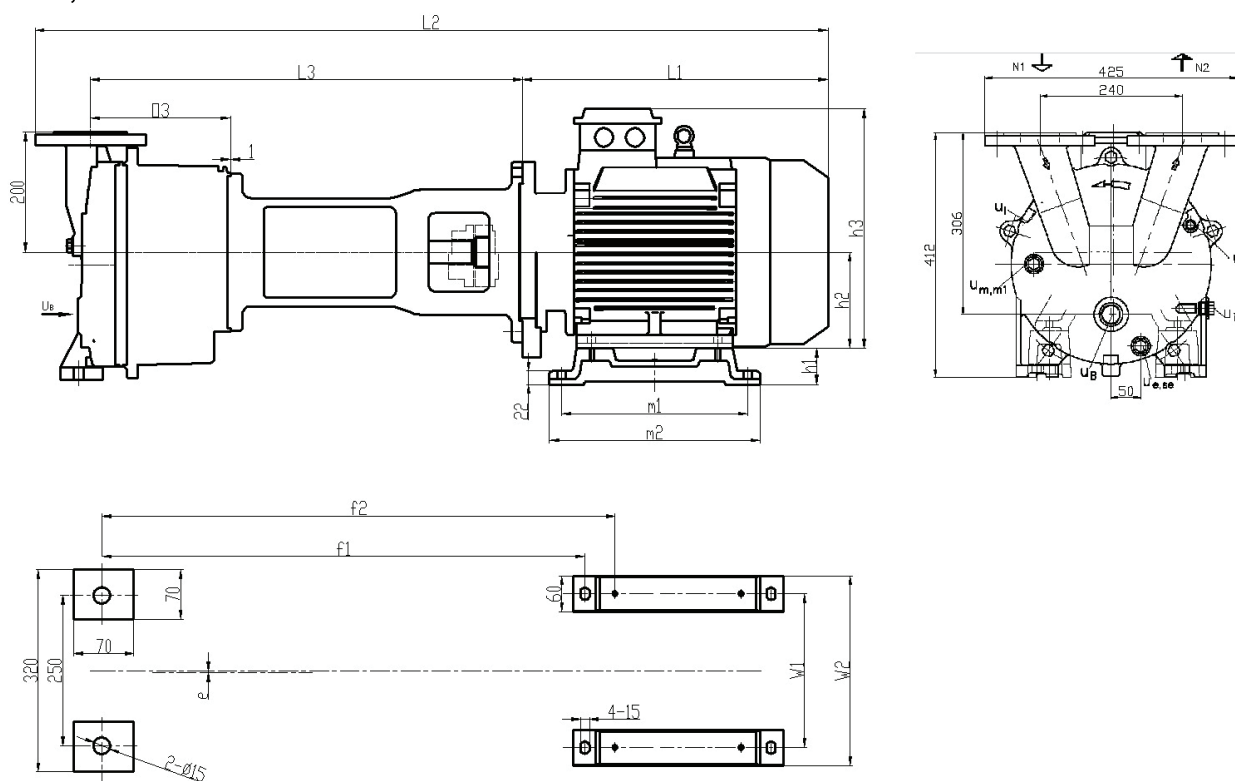
Pump	Electric motor IP55,50Hz,4P		Approx. weight (kg)	
	size	kW	Motor	Pump+ Motor
		50Hz		
SSVL 250	132 S	5.5	60	154

Motor feet are part of the standard supply of SSVL 250

Dimensions and weights are valid for standard motors used by manufacturer

TABLE OF DIMENSIONS AND WEIGHTS

SSVL325, 425



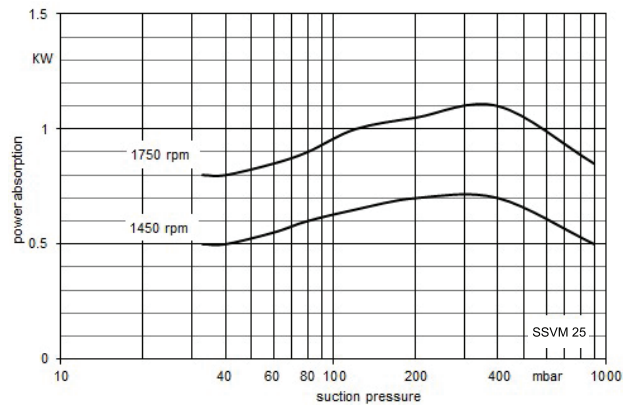
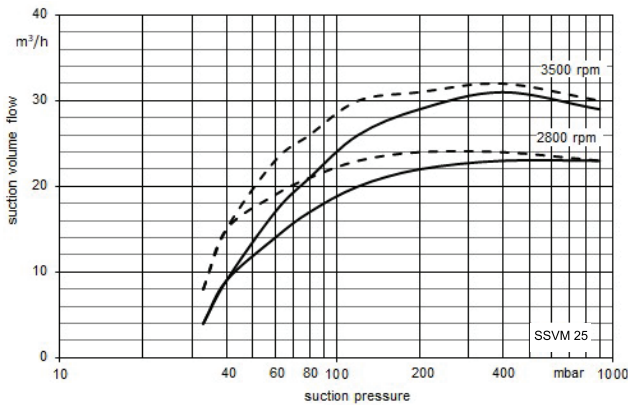
- N 1 = gas inlet DN 65
- N 2 = gas outlet DN 65
- u_B = connection for service liquid G 1
- u_c = connection for protection against cavitation G ¼
- u_e = drain connection G ½
- u_{se} = connection for dirt drain G ½
- u_m = connection for pressure gauge G ½
- u_{m1} = connection for drain valve G ½
- u_F = adjusting screw for internal liquid return
- u_I = Connection for relief valve G¹/₄

Pump	Electric motor IP 55		e	m1	m2	f ₁	f ₂	h1	h2	h3*	w1	w2	L3	L1*	L2*	O3	weight abt.	
	Size	KW 50hz															Motor	Pump+Motor
SSVL325	132 M	7.5	4	310	370	764.5	819	78	132	345	216	252	706	426	1225	219	74	231
SSVL425	160 M	11	6	375	415	820	878	50	160	420	254	334	720	500	1313	233	108	265

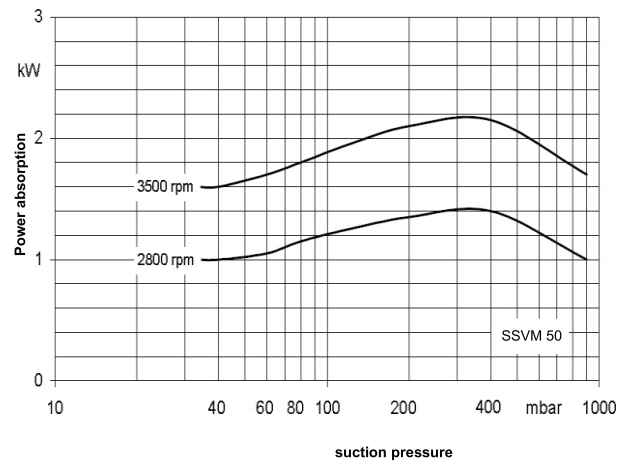
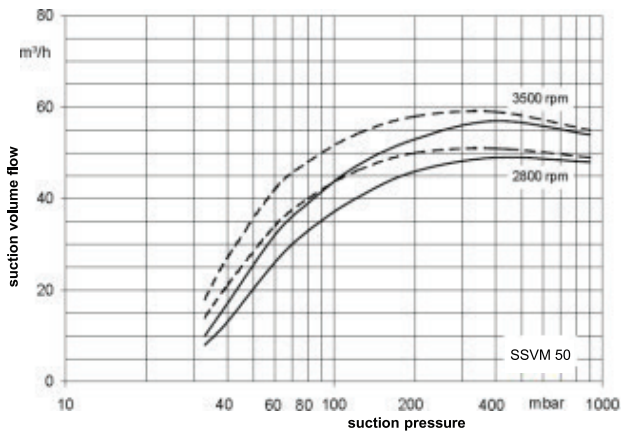
Motor feet are part of the standard supply of SSVL 325 , 425
 Dimensions and weights are valid for standard motors used by manufacturer

PERFORMANCE CURVES

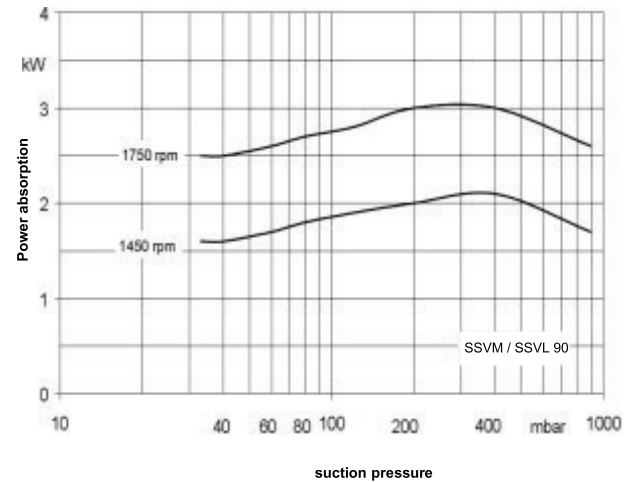
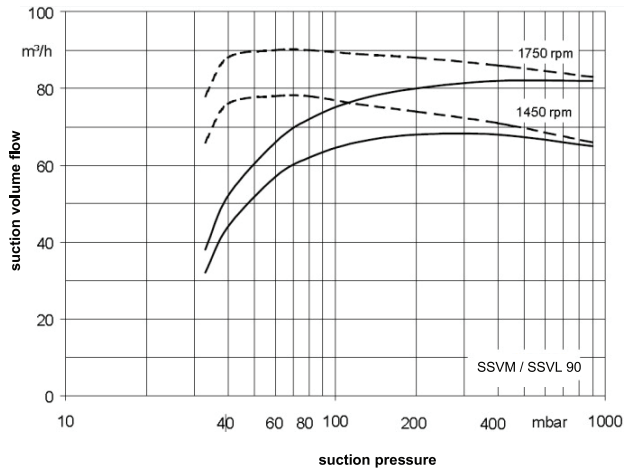
SSVM 25



SSVM 50



SSVM / SSVL 90

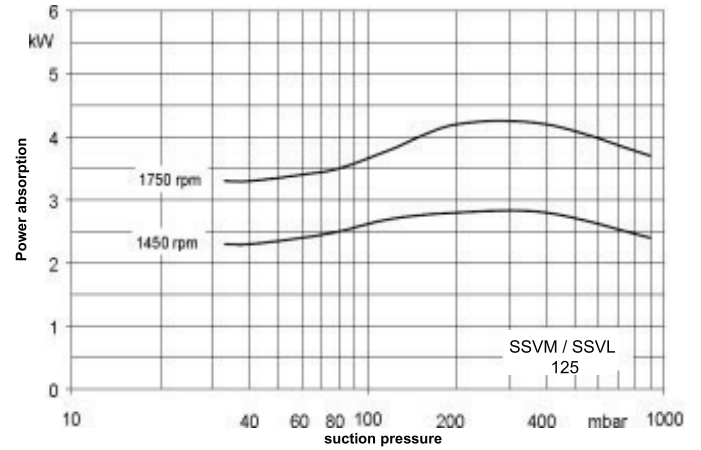
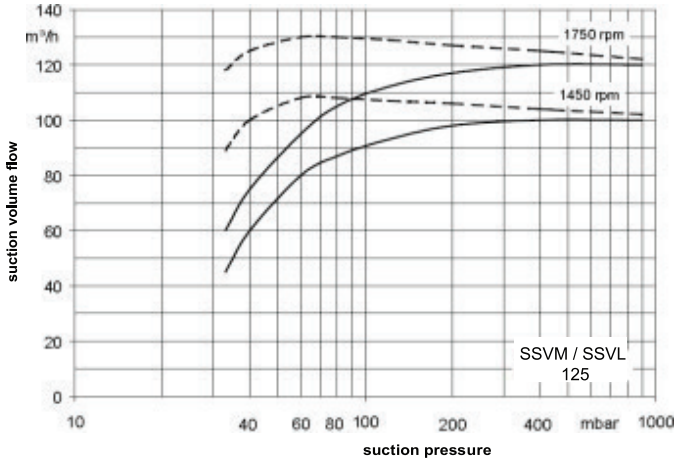


The operating data are applicable under the following conditions:		
pumping medium:	- dry air - water vapour saturated air	20°C — 20°C - - -
service liquid:	- water	15°C
Compression pressure	1013 mbar (atmospheric pressure)	
The suction volume flow is applied to the suction pressure Tolerance of the operating data 10% Max. fresh water need with lowest suction pressure		

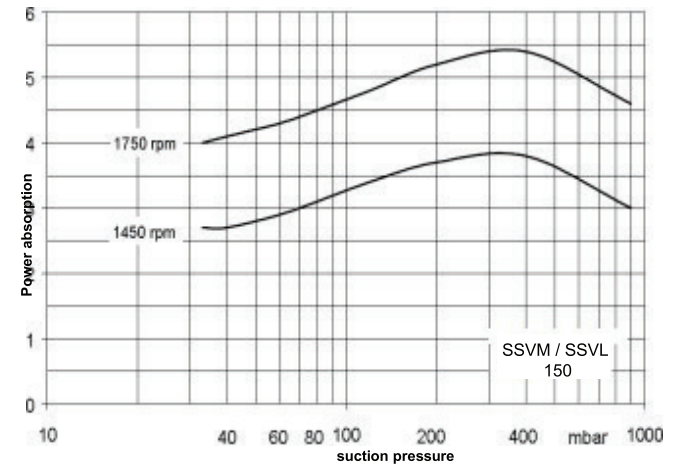
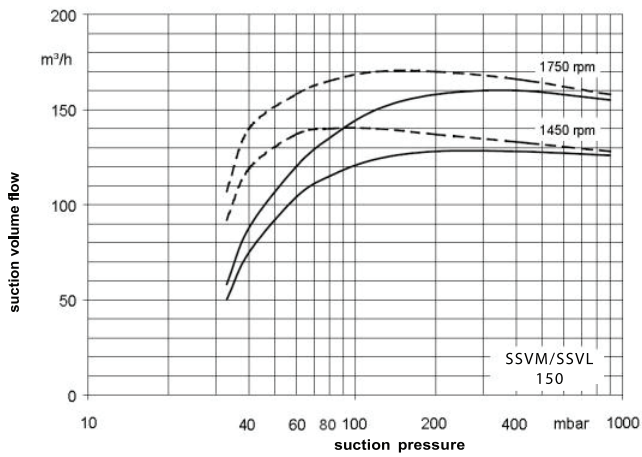
PERFORMANCE CURVES



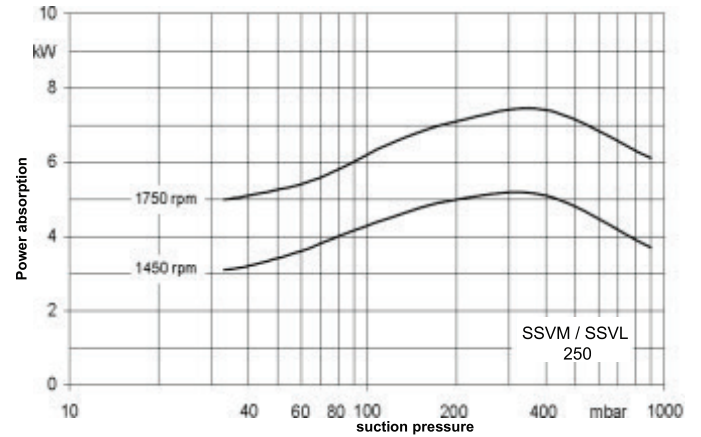
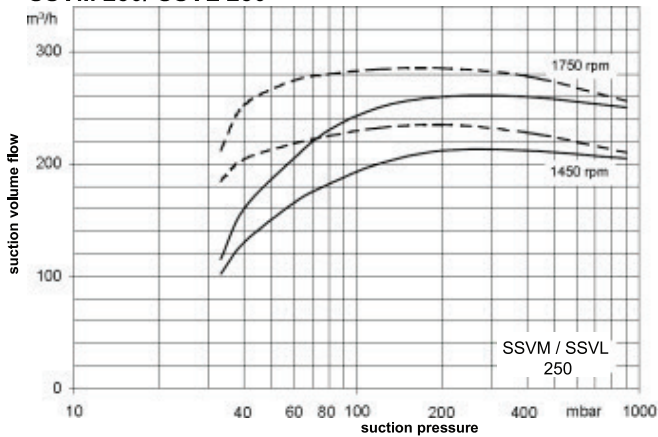
SSVM 125/ SSVL125



SSVM 150/ SSVL150



SSVM 250/ SSVL 250

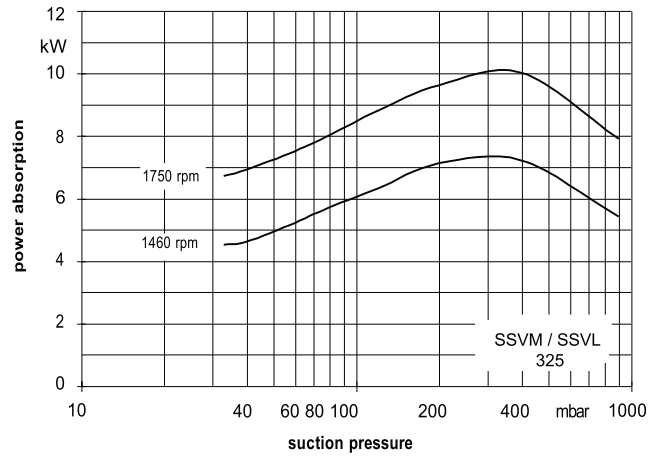
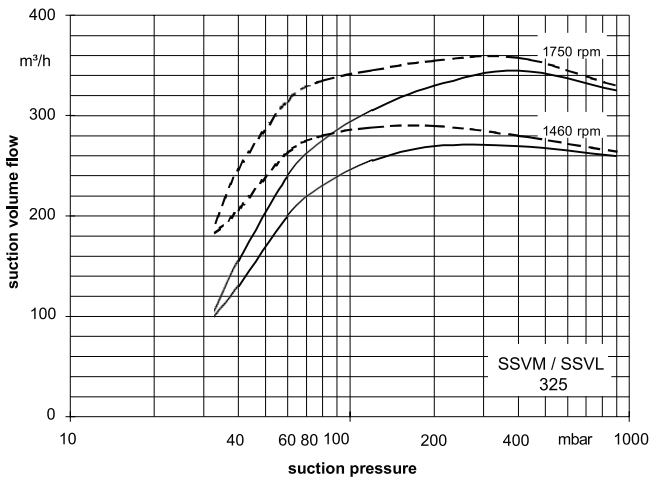


The operating data are applicable under the following conditions:		
pumping medium:	- dry air - water vapour saturated air	20°C _____ 20°C
service liquid:	- water	15°C
Compression pressure	1013 mbar (atmospheric pressure)	
The suction volume flow is applied to the suction pressure Tolerance of the operating data 10% Max. fresh water need with lowest suction pressure		

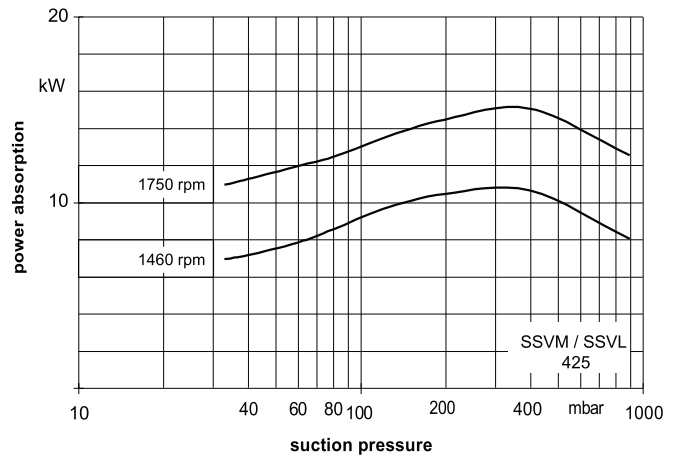
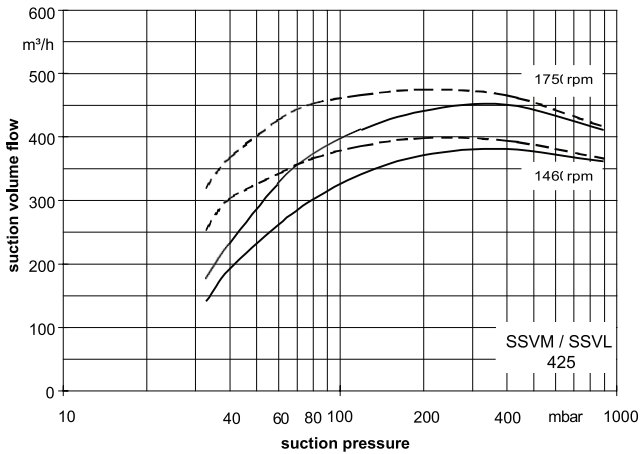
PERFORMANCE CURVES



SSVM 325 / SSVL 325



SSVM 425 / SSVL 425



The operating data are applicable under the following conditions:

pumping medium:

- dry air 20°C —
- water vapour saturated air 20°C - - - -
- water 15°C

service liquid:

Compression pressure

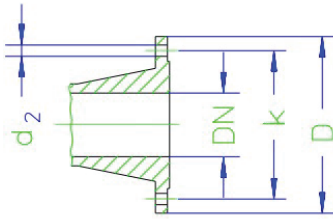
1013 mbar (atmospheric pressure)

The suction volume flow is applied to the suction pressure

Tolerance of the operating data 10%

Max. fresh water need with lowest suction pressure

Flange Connections to DIN 2501 PN10



flange connections to DIN 2501 PN 10				
DN	40	50	65	80
K	110	125	145	160
D	150	165	185	200
Number x d2	4x18	4x18	4x18	8x18

Water flow requirements

(mbar)		33				120				200				400			
Pump	Speed	KB			FB	KB			FB	KB			FB	KB			FB
		Temperature difference [°C]				Temperature difference [°C]				Temperature difference [°C]				Temperature difference [°C]			
		10	5	2		10	5	2		10	5	2		10	5	2	
[rpm]	10	5	2		10	5	2		10	5	2		10	5	2		
SSVM 25	2800	0.04	0.06	0.12	0.26	0.05	0.08	0.13	0.26	0.05	0.08	0.14	0.26	0.05	0.08	0.12	0.2
	3500	0.05	0.09	0.15		0.06	0.10	0.16		0.07	0.11	0.16		0.06	0.10	0.14	
SSVM 50	2800	0.07	0.13	0.23	0.5	0.09	0.15	0.25	0.48	0.09	0.15	0.25	0.45	0.09	0.14	0.22	0.35
	3500	0.11	0.18	0.29		0.12	0.20	0.31		0.13	0.20	0.30		0.12	0.18	0.25	
SSVM 90 SSVL	1450	0.12	0.22	0.41	1.0	0.14	0.24	0.44	0.95	0.14	0.25	0.44	0.9	0.15	0.24	0.41	0.75
	1750	0.18	0.30	0.52		0.19	0.32	0.53		0.20	0.33	0.53		0.19	0.31	0.47	
SSVM 125 SSVL	1450	0.17	0.28	0.50	1.0	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	0.22	0.36	0.59		0.24	0.39	0.60		0.26	0.40	0.60		0.24	0.37	0.53	
SSVM 150 SSVL	1450	0.19	0.32	0.54	1.0	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	0.26	0.41	0.63		0.29	0.44	0.65		0.30	0.45	0.64		0.29	0.41	0.57	
SSVM 250 SSVL	1450	0.22	0.37	0.63	1.2	0.29	0.45	0.70	1.1	0.30	0.46	0.68	1.0	0.28	0.42	0.59	0.8
	1750	0.32	0.50	0.77		0.37	0.55	0.79		0.38	0.55	0.75		0.35	0.49	0.64	
SSVM 325 SSVL	1460	0.31	0.52	0.88	1.6	0.40	0.63	0.97	1.5	0.42	0.65	0.96	1.4	0.40	0.60	0.84	1.15
	1750	0.42	0.67	1.03		0.50	0.75	1.07		0.52	0.76	1.05		0.49	0.69	0.91	
SSVM 425 SSVL	1460	0.46	0.74	1.19	2.0	0.56	0.85	1.23	1.75	0.57	0.84	1.18	1.6	0.54	0.76	1.01	1.3
	1750	0.64	0.97	1.40		0.69	0.99	1.34		0.70	0.97	1.27		0.64	0.85	1.06	

FB [m³/h] = fresh water service

KB [m³/h] = combined liquid service with service water 10 °C, 5 °C, 2 °C warmer than the fresh water.

Data regarding the pump size

Order notes

Series + Size	Shaft Sealing	Material Design
	<p>XP Standard Mechanical Seal gasket Perbunan</p> <p>SV Standard mechanical seal O-rings Viton</p> <p>SM Special mechanical seal O-rings Viton encapsulated with Teflon</p> <p>EV Special mechanical seal</p>	<p>C250S304SM Main parts HT250 Impeller 304</p> <p>C250S316SM Main parts from HT250 Impeller 316</p> <p>QS304SM Main parts from QT400-15 Impeller 304</p> <p>QS316SM Main parts from QT400-15 Impeller 316</p>
SSVM 25 50	XP	C250S304SM、C250S316SM、QS304SM、QS316SM
SSVM 90 SSVL 125 150	SV, SM, EV	C250S304SM、C250S316SM、QS304SM、QS316SM
SSVM 250 SSVL 325 425	SV, SM, EV	C250S304SM、C250S316SM、QS304SM、QS316SM

Motor data

Series+size	Motor enclosure IP 55 50 Hz				Motor enclosure IP 55 60 Hz			
	Y-Δ voltage +/- 5%	Power kW	Size	Motor-code (IE2)	Y-Δ voltage +/-10%	Power kW	Size	Motor-code (IE2)
SSVM 25	380/220	0.75	80M1-2	B01	440/220	1.1	80M2-2	S01
SSVM 50	380/220	1.5	90 S-2	B02	440/220	2.2	90 S - 2	S02
SSVM / SSVL 90	380/220	2.2	100 L1- 4	B03	440/220	3.3	100 L2- 4	S03
		3	100 L2- 4	B04		4.8	112 M -4	S04
SSVM / SSVL 125	380/220	3	100 L2- 4	B04	440/220	4.8	112 M -4	S04
		4	112 M- 4	B05		6	112 M -4	S05
SSVM / SSVL 150	660/380	4	112 M- 4	B05	720/440	6	112 M -4	S05
		4.8	112 M- 4	B05				
SSVM / SSVL 250	660/380	5.5	132 S- 4	B06	720/440	8	132 S - 4	S06
SSVM / SSVL 325	660/380	7.5	132M- 4	B07	720/440	13.2	160 M - 4	S07
SSVM / SSVL 425	660/380	11	160M- 4	B08	720/440	18	160 M - 4	S08

HABERG
PUMPS 

HABERG® PUMPS

The logo graphic consists of a vertical column of five colored circles: grey, orange, yellow, green, and blue. A registered trademark symbol (®) is positioned to the upper right of the top circle.

Haberg® Pumps (Asia)

HabergPumps-Asia.com
sales@habergpumps-asia.com