

Liquid ring vacuum pumps 液环式真空泵

With motor carrier design 带电机托架设计



VLA 90, 125, 150, 250, 325, 425

VLE 95, 130, 155, 255

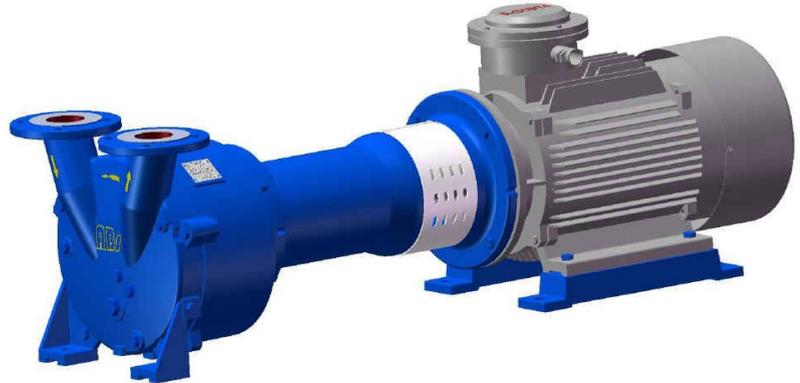
VLG 95, 130, 155

PRESSURE RANGE:

入口压力范围: 33 - 1013 mbar

SUCTION VOLUME:

入口流量: 32 - 470 m³/h



CONSTRUCTION TYPE

结构型式

ABs liquid ring vacuum pumps are displacement pumps of uncomplicated and robust construction with the following particular features:

ABs 液环式真空泵是结构简单使用可靠的容积变化式泵，具有如下特点：

nearly isothermal compression
几乎等温压缩

oil-free, as no lubrication in the working chamber
therefore non-polluting
在工作腔内无需润滑，因而绝对无油，无污染

Capable of handling of nearly all gases and vapours
可处理几乎所有的气体和蒸汽

small quantities of entrained liquid can be handled
可处理少量的夹带液体

easy maintenance and reliable operation
易维护，高可靠性

low noise and nearly free from vibration
低噪音，几乎无振动

wide choice of materials, therefore applicable nearly everywhere
广泛的材质选择，基本上可用于所有场合

shaft not in contact with the medium
轴不接触介质

protection against cavitation as standard
气蚀保护作为标准配置

incorporated dirt drain
一体式排污

no metallic contact of the rotating parts
旋转部件没有金属接触

ABs liquid ring vacuum pumps VL are single-stage
ABs VL 系列液环式真空泵是单级泵。

NOTE

注意事项

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.

泵运转期间需连续不断地补充工作液（通常为水），以带走气体压缩而产生的热量和补充部分随气体排出的工作液。此部分工作液可在气液分离器中与气体分开（请见样本附件部分），以重新利用。

泵可按需要配备连接管线，以保证在运转条件下连续地排放被污染的工作液。

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

从泵的驱动端看，泵的旋转方向为顺时针。

APPLICATION

应用

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

干气和湿气的处理和抽除；正常条件下可处理夹带少量的液体。此真空泵可用于所有需要33 mbar到900 mbar的场合。

GENERAL TECHNICAL DATA 常规技术数据

Pump type 泵型号		Unit 单位	VLA 90 VLE 95 VLG95	VLA 125 VLE 130 VLG130	VLA 150 VLE 155 VLG155	VLA 250 VLE 255	VLA325	VLA 425
Synchronous speed 同步转速	50 Hz	rpm	1500					
	60 HZ		1750					
Max. compression over atmospheric pressure 最大背压		bar	0.3					
Max. admissible pressure difference 允许最大压差		bar	1.1					
Test pressure above atmospheric pressure 水压试验 (表压)		bar	3					
Moment of inertia of the rotating pump parts and water filling 满水时转动部件的惯性力矩		kg·m ²	0.035	0.053	0.069	0.097	0.14	0.21
Sound pressure level at a suction pressure of 80 mbar 在 80mbar 入口压力下的噪音		dB (A)	72				76	78
Max. gas temperature 最大吸气温度	Dry gas 干气	°C	200					
	Saturated gas 饱和气	°C	100					
Service liquid 工作液 max. recommended temperature for water as working liquid 工作液为水的最大推荐温度		°C	40					
	max. admissible temperature for other suitable working liquids 对其他适合的工作液最大允许温度	°C	80					
max. kinematic viscosity 最大运动粘度		mm ² /s	4					
max. density 最大密度		kg/m ³	1200					
volume up to shaft level 到轴中心线的容积		liter	2.4	2.8	3.2	4.0	4.2	4.7

The combination of several limiting values is not admissible.

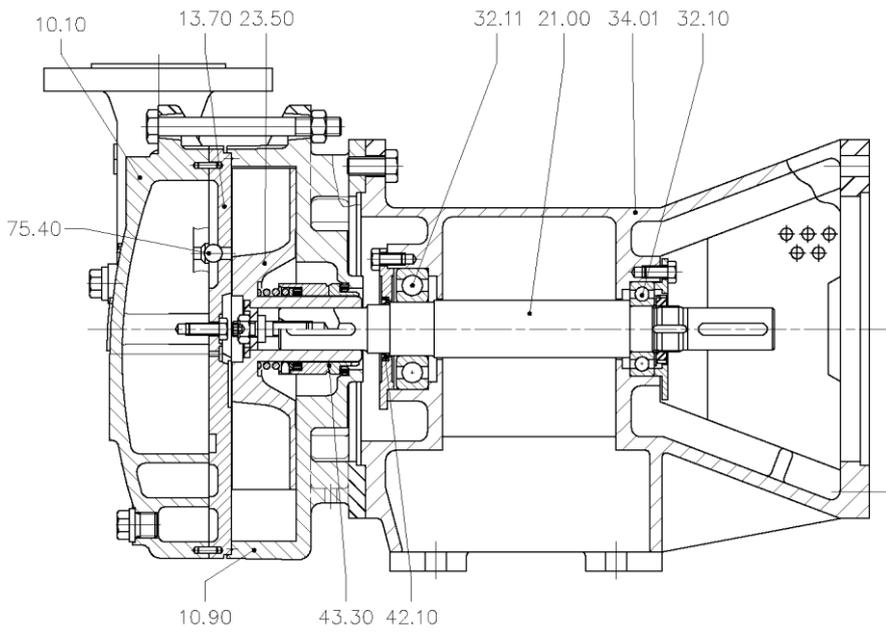
不允许将几种极限值同时选择

Material design 材料设计

Material Design 材料设计		0K	4B	SZ	0D	0E	0F
Pump Type 泵型号	VLA 90,125,150	√	√	√	√	√	√
	VLE/VLG 95,130,155						
	VLA 250 VLE 255	√	√	√	√	√	√
	VLA 325,425	√	√	√	√	√	√
Item 位号	Component 零件	Material 材质					
10.10	Casing 泵盖	HT250	316	HT250	HT250	HT250	HT250
10.90	Central body 中间体	HT250	316	HT250	HT250	HT250	316
13.70	Guide disc 导流盘	HT250	316	316	HT250	316	316
23.50	Vane wheel impeller 叶轮	304	316	316	316	304	304
43.30	Mechanical seal 机械密封	XBPF Q22BVGG	Q22BMGG	Q22BVGG / Q22BMGG			
		X: Ceramic 陶瓷	P: Perbunan 丁腈橡胶NBR				
		Q22: Sic 碳化硅	M: PTFE encapsulated 氟橡胶外包裹聚四氟乙烯				
		B: Carbon 石墨	F: 304 不锈钢				
		V: Vinton 氟橡胶	G: 316 不锈钢				

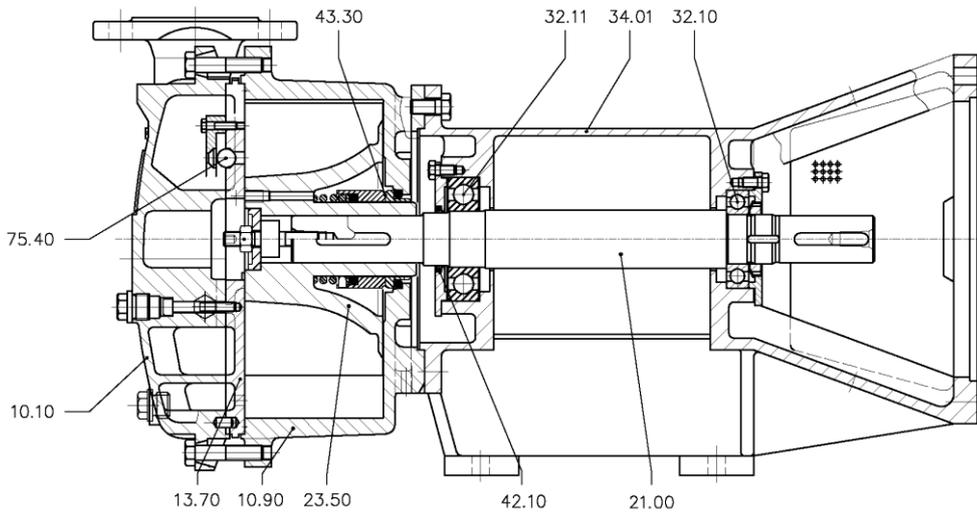
Sectional drawings 剖视图

VLA 90/ 125/ 150

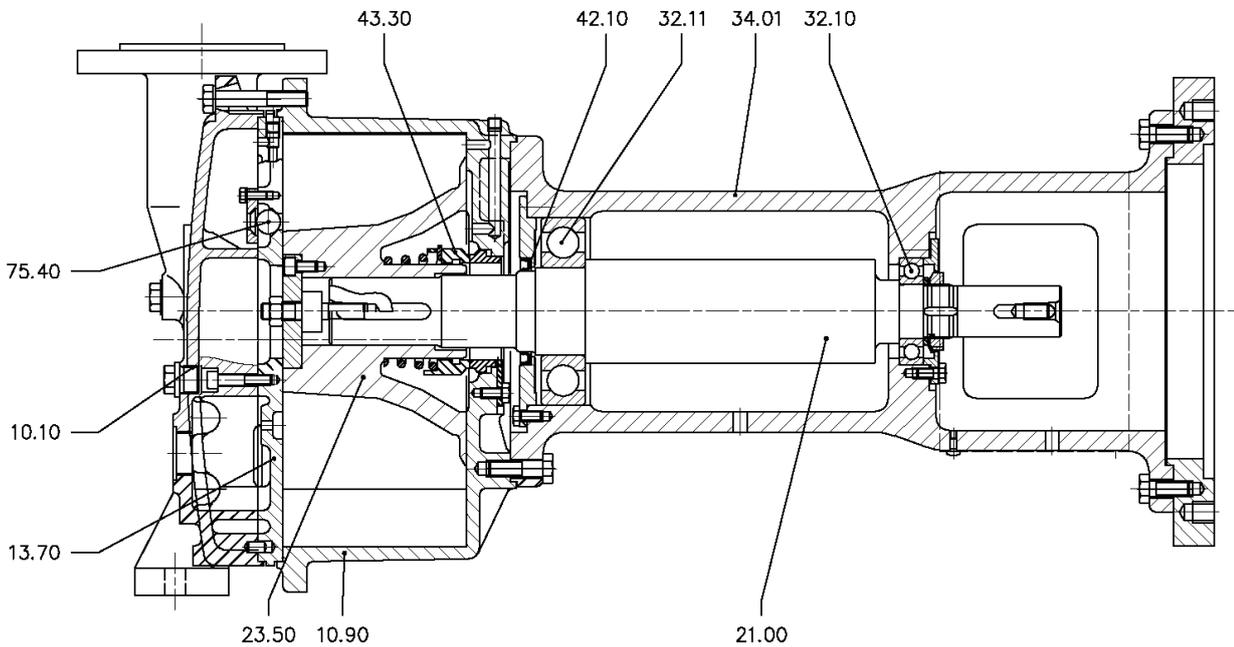


10.10	Casing 泵盖
10.90	Central body 中间体
13.70	Guide disc 导流盘
21.00	Shaft 轴
23.50	Vane wheel impeller 叶轮
34.01	Motor Carrier 电机托架
43.30	Mechanical seal 机械密封
75.40	Valve balls 阀球
32.10	Ball bearing 球轴承
32.11	Ball bearing 球轴承
42.10	Radial Seal 径向密封

VLA 250

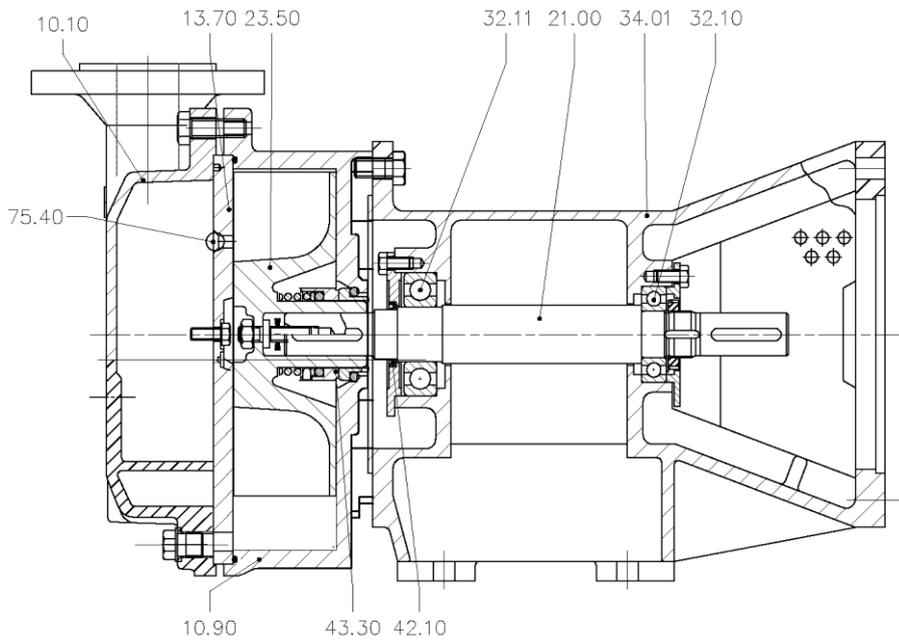


VLA 325 / 425



Sectional drawings 剖视图

VLE 95/ 130/ 155



10.10	Casing 泵盖
10.90	Central body 中间体
13.70	Guide disc 导流盘
21.00	Shaft 轴
23.50	Vane wheel impeller 叶轮
34.01	Motor Carrier 电机托架
43.30	Mechanical seal 机械密封
75.40	Valve balls 阀球
32.10	Ball bearing 球轴承
32.11	Ball bearing 球轴承
42.10	Radial Seal 径向密封

VLE 255

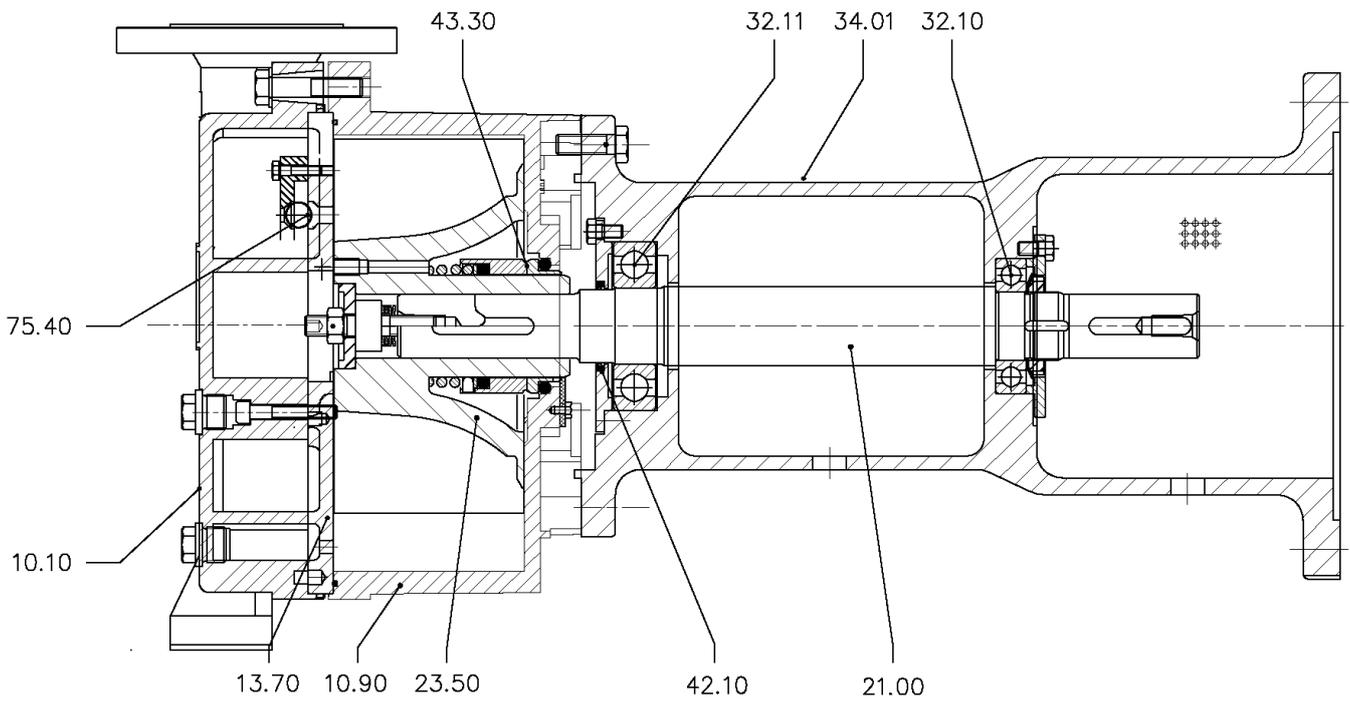
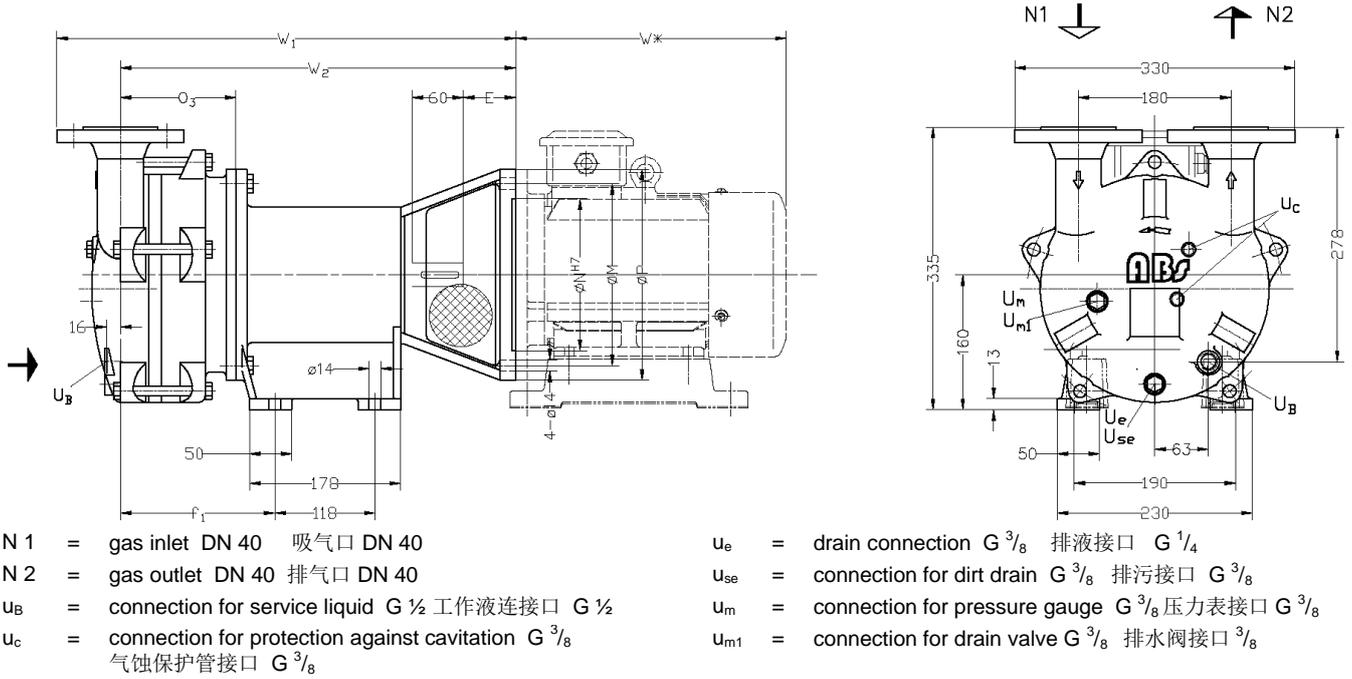


Table of Dimensions and weights 外形尺寸和重量列表

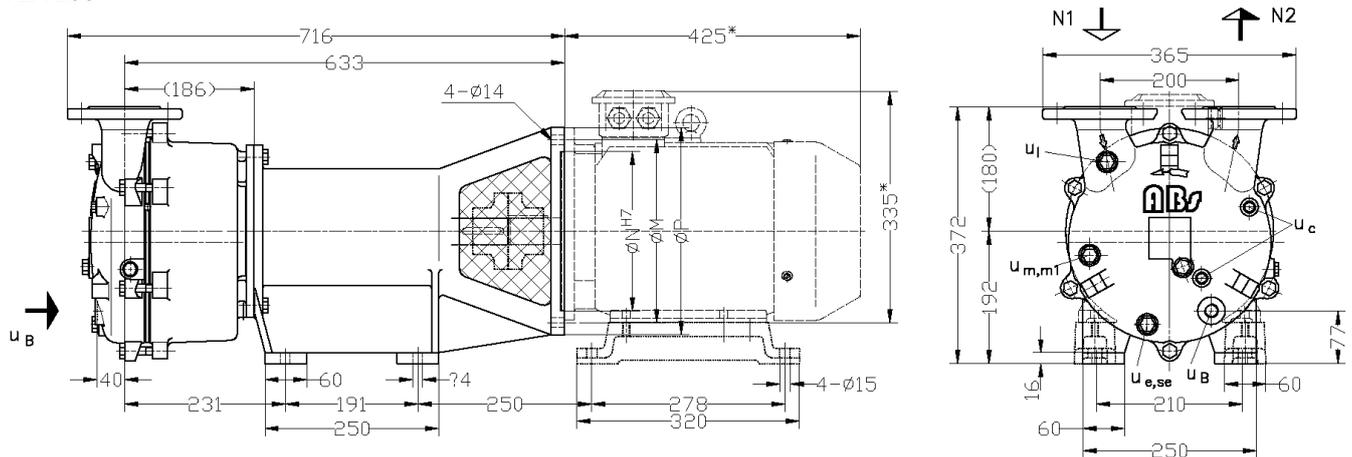
Motors on request 电机按需求另配

VLA 90, VLA 125, VLA 150



Pump 泵型号	Electric Motor 电机		f ₁	O ₃	W ₁	W ₂	E				Aprox. weight w/o motor and coupling (Kg) 单泵重量约 (Kg)
	Size 机座号	Power 功率(Kw)									
VLA 90	100 L1	2.2	182	136	541	466	62				62
	100 L2	3									
VLA125	100 L2	3	191	145	550	475	62				65
	112 M	4									
VLA150	112 M	4	208	162	567	492	82				82
	132 S	5.5			587	512					

VLA 250



Pump 泵型号	Electric Motor 电机				Aprox. weight w/o motor and coupling 单泵重量约 (Kg)
	Size 机座号	Power 功率 (Kw)	Length 长 M	Weight 重量(Kg)	
VLA 250	132 S	5.5	471	73	94

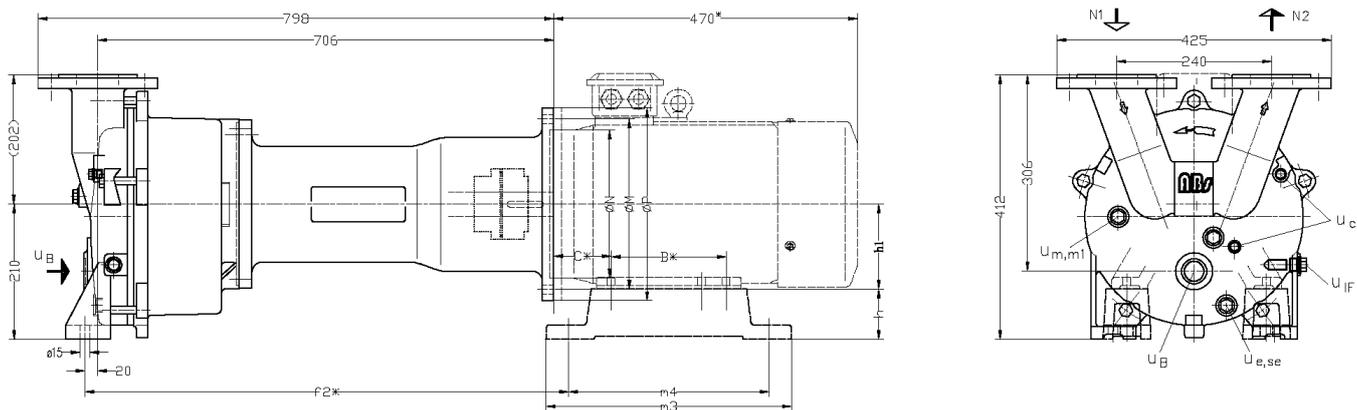
Motor feet are accessories and not part of the standard supply of VLA
电机底脚是附件但不是VLA的标准配置

Flange connections see page 9 法兰连接请见第9页

Table of Dimensions and weights 外形尺寸和重量列表

Motors on request 电机按需求另配

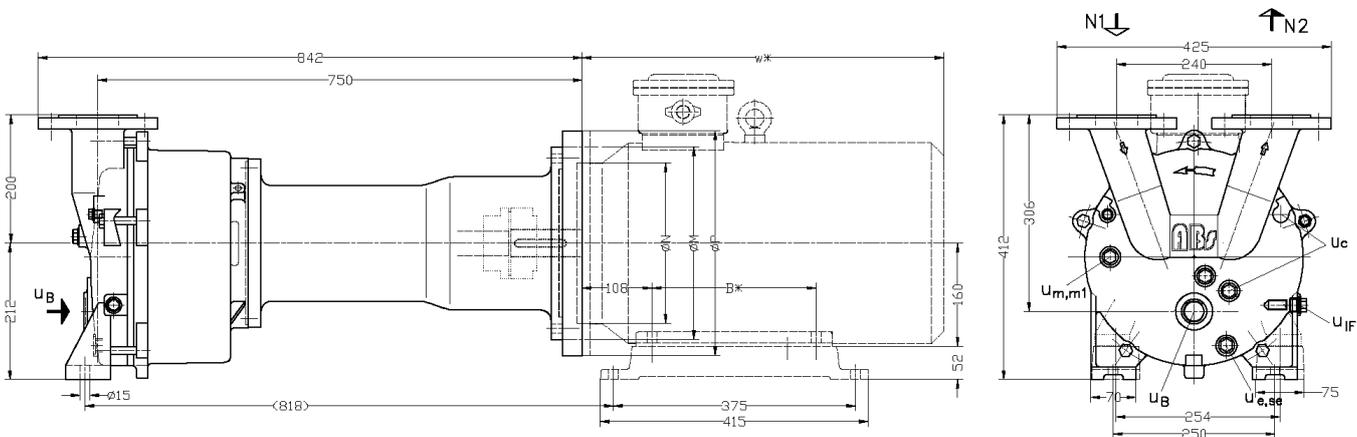
VLA 325



- N 1 = Gas inlet DN65 吸气口 DN65
- N 2 = Gas outlet DN65 出气口 DN65
- U_B = Connection for service liquid G1 工作液连接口 G1
- U_C = Connection for protection against cavitation G ¼ 汽蚀保护接口 G ¼
- U_e = Drain connection G ½ 排液接口 G ½
- U_{se} = Connection for dirt drain G ½ 排污接口 G ½
- U_m = Connection for pressure gauge G ½ 压力表接口 G ½
- U_{m1} = Connection for drain valve G ½ 排水阀接口 G ½
- U_{if} = Adjusting screw for internal liquid return 内循环液调节螺丝

Pump 泵型号	Electric Motor 电机				h	h ₁	m ₃	m ₄	B*	C*	f ₂ *	M	N	P	Aprox. weight w/o motor intermediate ring 单泵重量(不含 转接环) (Kg)
	Size 机座号	Power 功率 (Kw)	Length 长	Weight 重量 (Kg)											
VLA 325	132 M	7.5	478	93	78	132	380	310	178	89	742.5	265	230	300	123
	160 M	11.0	521**	130	50	160	415	375	210	108		300	250	350	

VLA 425



Pump 泵	Electric Motor 电机		B	M	N	P	Aprox. weight of pump with intermediate ring but w/o motor 单泵重量约 (Kg)
	Size 机座号	Power 功率 (Kw)					
VLA 425	160 M	11	210	300	250	350	139
	160 L	15	254				

Length of intermediate ring included in length of pump
泵长度包括转接环长度

Motor feet are accessories and not part of the standard supply of VL
电机底脚是附件但不是VL的标准配置

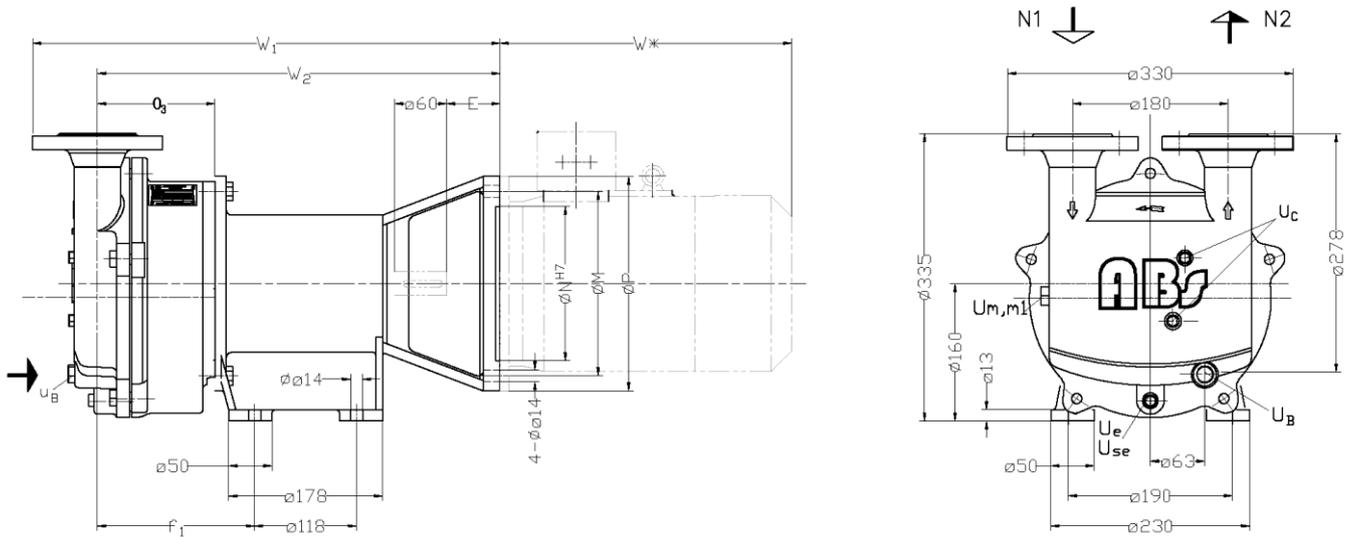
- N 1 = Gas inlet DN65 吸气口 DN65
- N 2 = Gas outlet DN65 出气口 DN65
- U_B = Connection for service liquid G1 工作液连接口 G1
- U_C = Connection for protection against cavitation G ¼ 汽蚀保护接口 G ¼
- U_e = Drain connection G ½ 排液接口 G ½
- U_{se} = Connection for dirt drain G ½ 排污接口 G ½
- U_m = Connection for pressure gauge G ½ 压力表接口 G ½
- U_{m1} = Connection for drain valve G ½ 排水阀接口 G ½
- U_{if} = Adjusting screw for internal liquid return 内循环液调节螺丝

Flange connections see page 9 法兰连接请见第9页

Table of Dimensions and weights 外形尺寸和重量列表

Motors on request 电机按需求另配

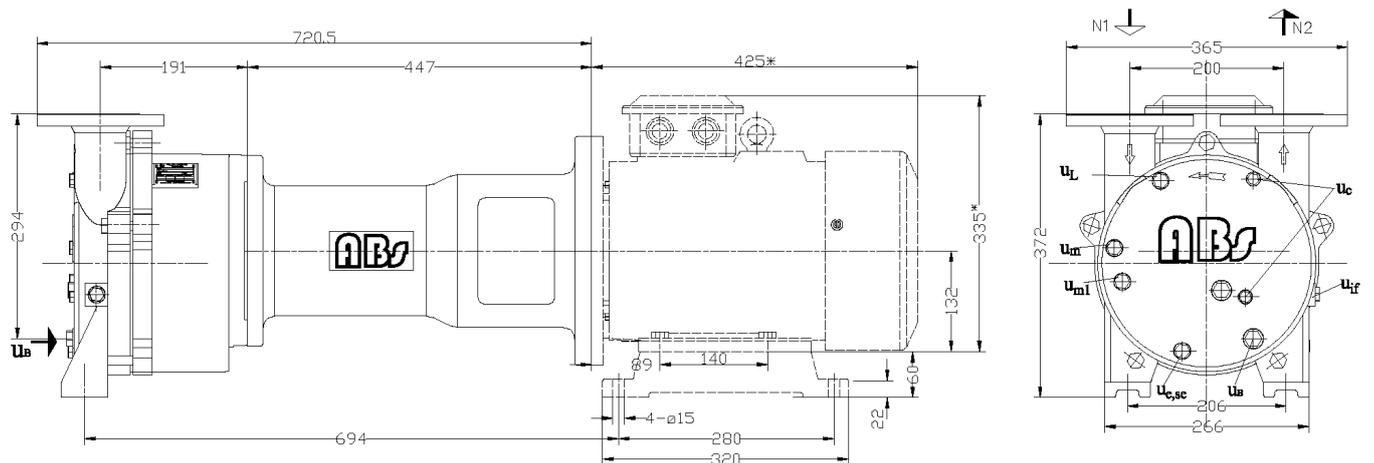
VLE 95, VLE 130, VLE 155



- N 1 = gas inlet DN 40 吸气口 DN 40
- N 2 = gas outlet DN 40 排气口 DN 40
- UB = connection for service liquid G 1/2 工作液连接口 G 1/2
- UC = connection for protection against cavitation G 3/8 气蚀保护管接口 G 1/4
- Ue = drain connection G 1/4 排液接口 G 1/4
- Use = connection for dirt drain G 1/4 排污接口 G 1/4
- Um = connection for pressure gauge G 3/8 压力表接口 G 3/8
- Um1 = connection for drain valve G 3/8 排水阀接口 3/8

Pump 泵型号	Electric Motor 电机		f ₁	O ₃	W ₁	W ₂	E			Aprox. weight w/o motor and coupling (Kg) 单泵重量约 (Kg)
	Size 机座号	Power 功率(Kw)								
VLE 95	100 L1	2.2	176	130	535	460	62			62
	100 L2	3								
VLE130	100 L2	3	182	136	541	466	62			65
	112 M	4								
VLE155	112 M	4	201	155	560	485	82			82
	132 S	5.5			580	505				

VLE 255



Pump 泵型号	Electric Motor 电机				Aprox. weight w/o motor and coupling 单泵重量约 (Kg)
	Size 机座号	Power 功率 (Kw)	Length 长 M	Weight 重量(Kg)	
VLA 255	132 S	5.5	471	73	94

- N 1 = Gas inlet DN50 吸气口 DN50
- N 2 = Gas outlet DN50 出气口 DN50
- UB = Connection for service liquid G 1/2 工作液连接口 G 1/2
- UC = Connection for protection against cavitation G 1/4 气蚀保护接口 G 1/4
- Ue = Drain connection G 1/2 排液接口 G 1/2
- Use = Connection for dirt drain G 1/2 排污接口 G 1/2
- Um = Connection for pressure gauge G 1/2 压力表接口 G 1/2
- Um1 = Connection for drain valve G 1/2 排水阀接口 G 1/2
- UiF = Adjusting screw for internal liquid return 内循环液调节螺丝

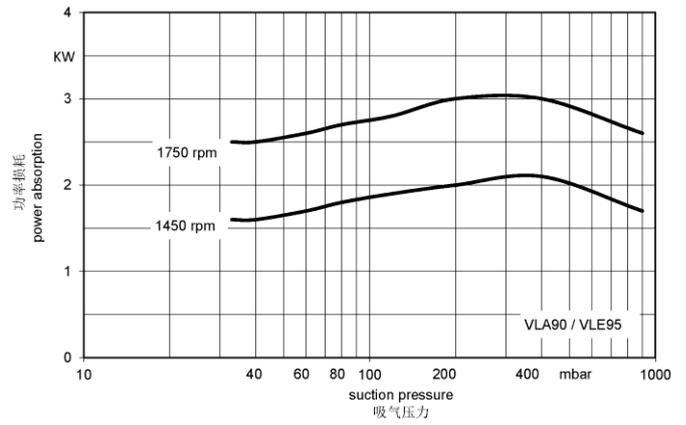
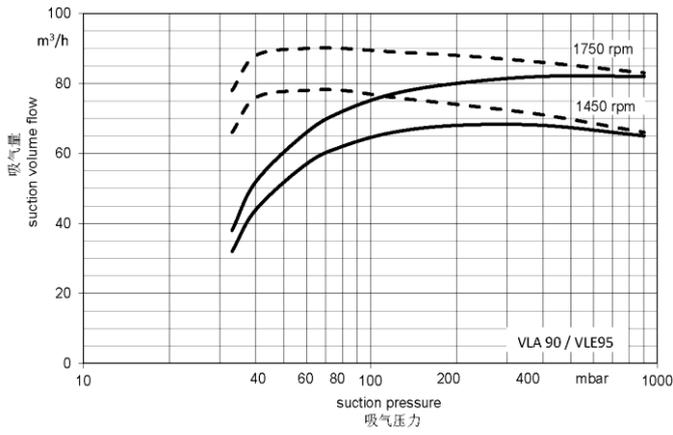
Motor feet are accessories and not part of the standard supply of VLA
电机底脚是附件但不是VLA的标准配置

Flange connections see page 9 法兰连接请见第9页

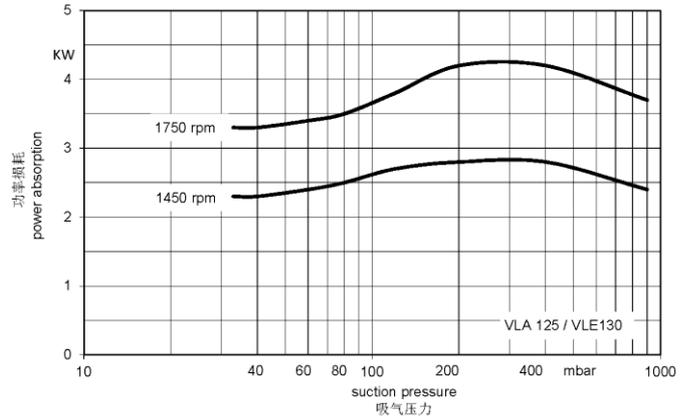
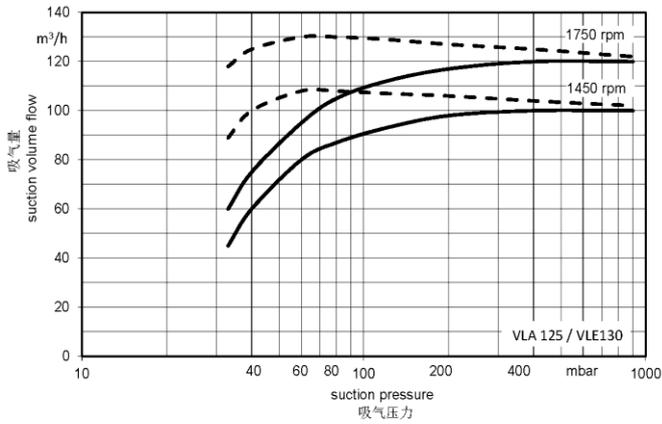
Table of Dimensions and weights 外形尺寸和重量列表

Performance Curves 泵的性能曲线

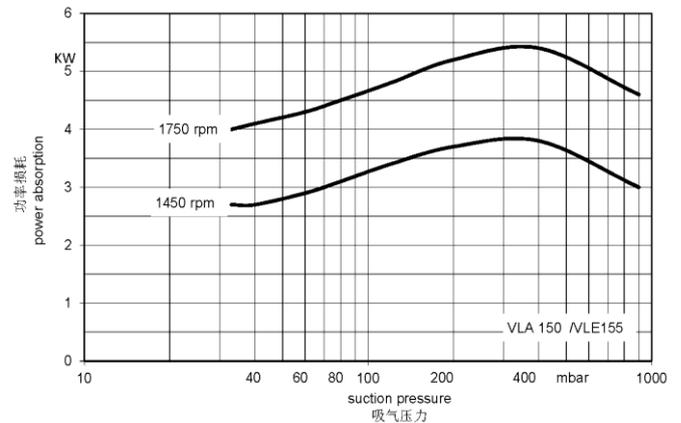
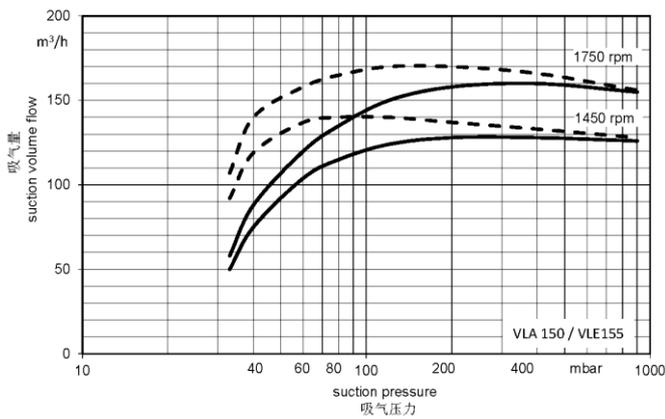
VLA 90, VLE 95



VLA 125, VLE 130



VLA 150 VLE 155



The operating data are applicable under the following conditions 性能曲线基于如下工况:

pumping medium 吸气介质:

- dry air 干空气

at: 20°C —————

- water vapour saturated air 饱和空气

at: 20°C - - - - -

- water 水

at: 15°C

service liquid 工作液:

Compression pressure 排气压力:

1013 mbar (atmospheric pressure 大气压)

Tolerance of the operating data 性能允许误差:

10%

The suction volume flow is applied to the suction pressure

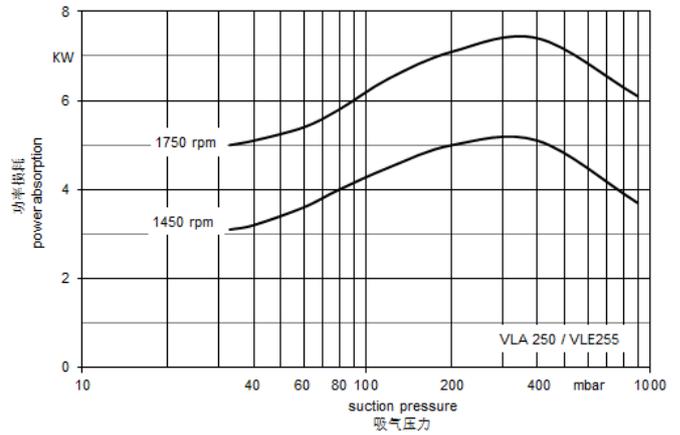
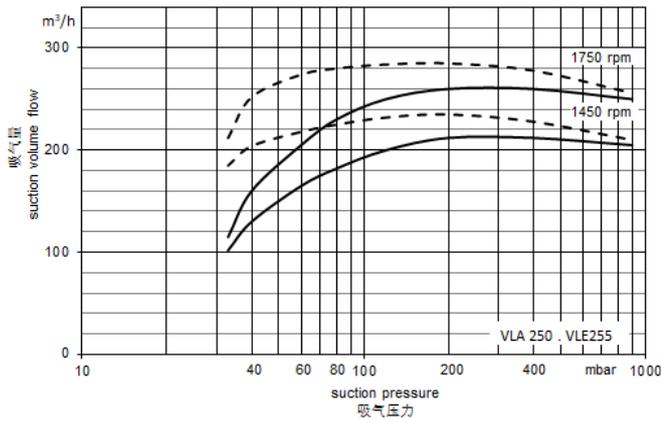
吸气量是入口压力下的流量

Max. fresh water need with lowest suction pressure

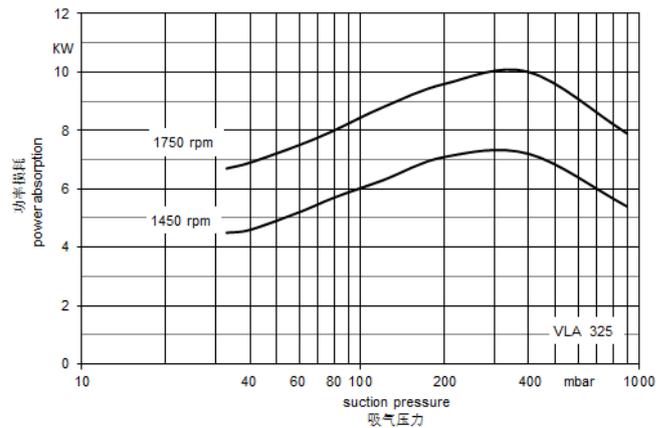
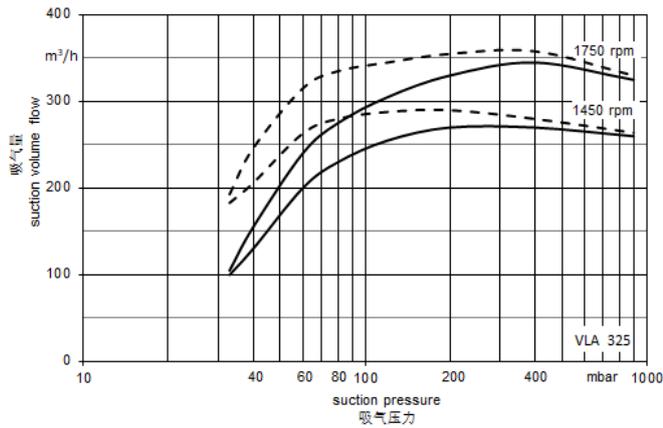
最大新鲜水用量是最低入口压力下的流量

Performance Curves 泵的性能曲线

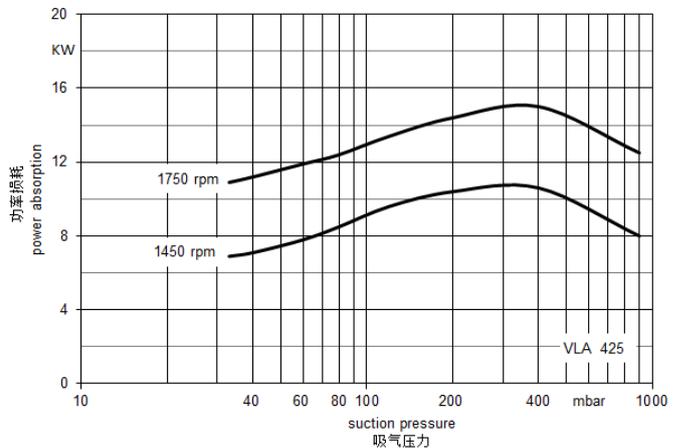
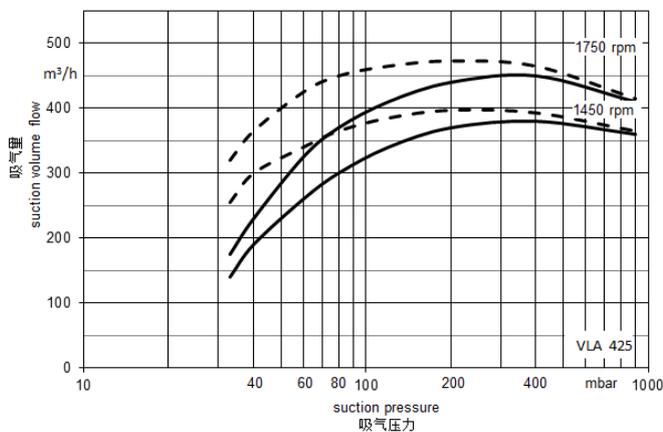
VLA 250, VLE 255



VLA 325



VLA 425



The operating data are applicable under the following conditions 性能曲线基于如下工况:

pumping medium 吸气介质:

- dry air 干空气

at: 20°C —————

- water vapour saturated air 饱和空气

at: 20°C - - - - -

- water 水

at: 15°C

service liquid 工作液:

Compression pressure 排气压力:

1013 mbar (atmospheric pressure 大气压)

Tolerance of the operating data 性能允许误差:

10%

The suction volume flow is applied to the suction pressure

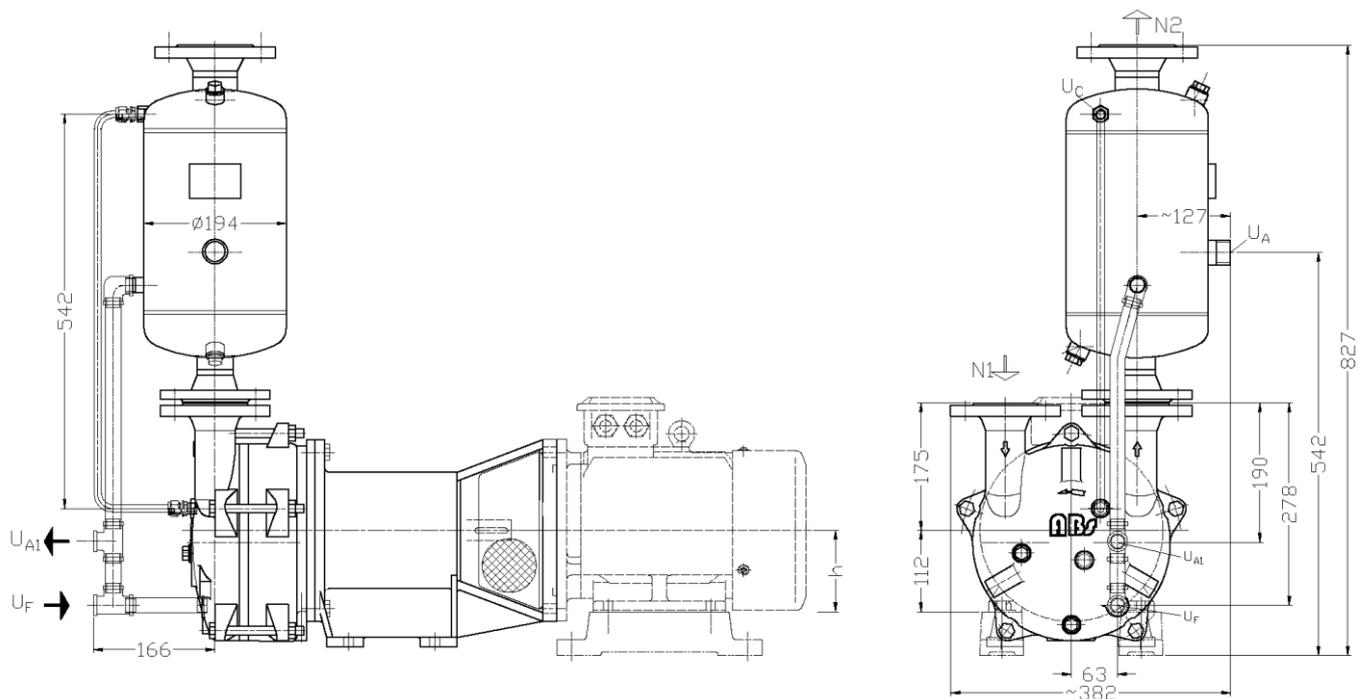
吸气量是入口压力下的流量

Max. fresh water need with lowest suction pressure

最大新鲜水用量是最低入口压力下的流量

Arrangement Drawings with Accessories 带附件外形图

VLA 90, VLA 125, VLA 150 VLE 95, VLE 130, VLE 155

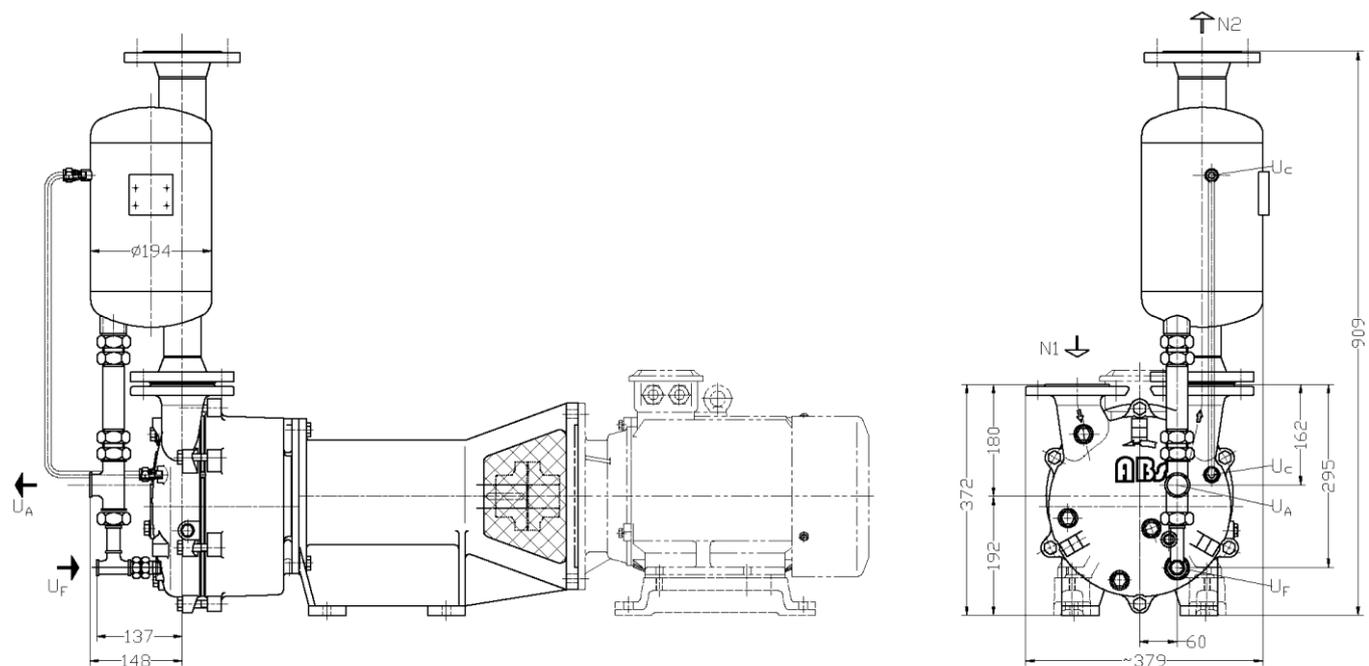


- N1 = gas inlet DN 40 吸气口 DN 40
 N2 = gas outlet DN 50 排气口 DN50
 uc = connection for protection against cavitation G ¼
 气蚀保护管接口 G ¼

- UA = connection for dirt drain G1 排污接口 G1
 UA1 = connection for dirt drain G1 排污接口 G 1
 UF = connection for fresh liquid G ½
 工作液接口 G ½

Motor feet are accessories and not part of the standard supply
 电机底脚是附件但不是标准配置

VLA 250 VLE 255



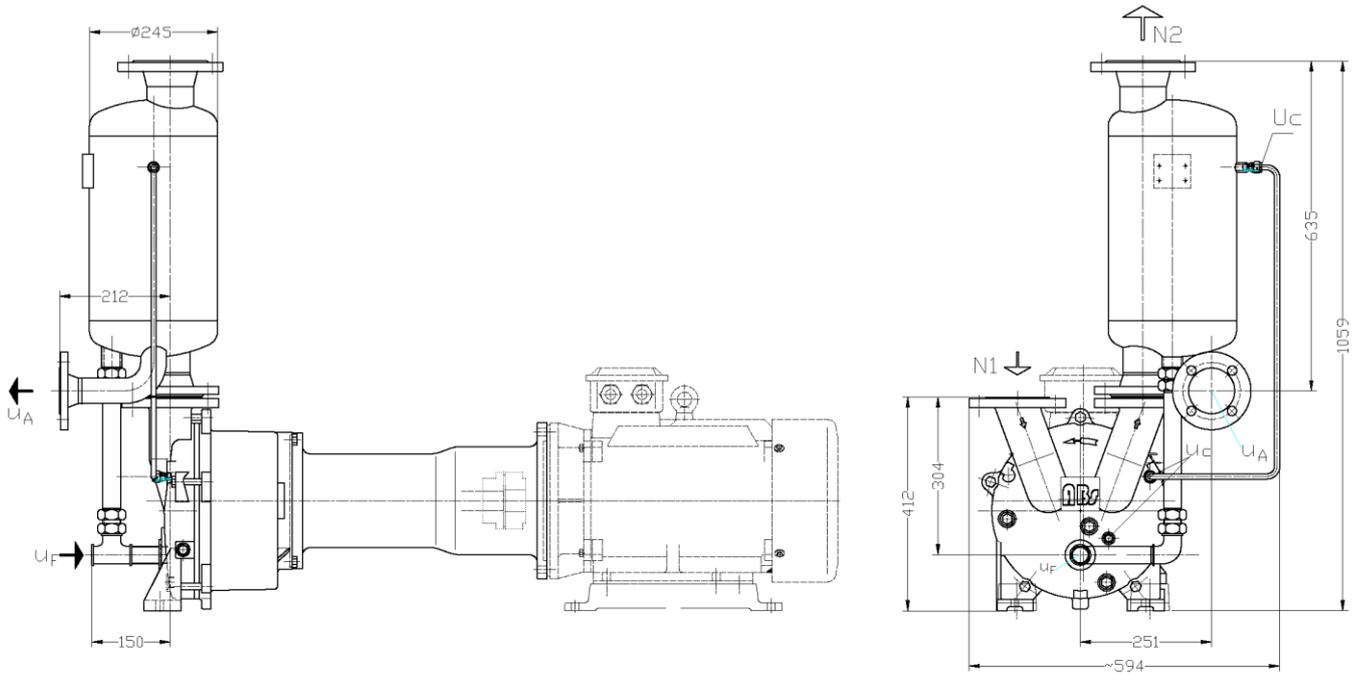
- N 1 = gas inlet DN 50 吸气口 DN 50
 N 2 = gas outlet DN 65
 排气口 DN65
 UA1 = connection for dirt drain G1 排污接口 G 1

- UF = connection for fresh liquid G ½ 工作液接口 G ½
 uc = connection for protection against cavitation G ¼
 气蚀保护管接口 G ¼

Motor feet are accessories and not part of the standard supply
 电机底脚是附件但不是标准配置

Arrangement Drawings with Accessories 带附件外形图

VLA 325, VLA 425

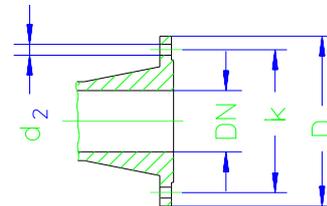


- | | | | | | |
|----------------|---|--|-----------------|---|---|
| N1 | = | gas inlet DN 65
吸气口 DN 65 | u _c | = | connection for protection against cavitation G ¼
气蚀保护管接口 G ¼ |
| N2 | = | gas outlet DN 80
排气口 DN80 | u _{A1} | = | connection for dirt drain G 1
排污接口 G 1 |
| u _F | = | connection for fresh liquid G ½
工作液接口 G ½ | u _{A2} | = | connection for liquid drain G 1
排液接口 G 1 |

Motor feet are accessories and not part of the standard supply
电机底脚是附件但不是标准配置

Flange Connections to DIN 2501 PN10 法兰尺寸按DN2501 PN10标准

flange connections to DIN 2501 PN 10 法兰尺寸				
DN	40	50	65	80
k	110	125	145	160
D	150	165	185	200
number数量 x d ₂	4 x 18	4 x 18	4 x 18	8 x 18



Water flow requirements 水流量需求

Suction pressure 入口压力 [mbar]		33				120				200				400			
Pump 泵型号	Syn- speed 转速 [rpm]	KB			FB	KB			FB	KB			FB	KB			FB
		Difference in temperature 温差 [°C]				Difference in temperature 温差 [°C]				Difference in temperature 温差 [°C]				Difference in temperature 温差 [°C]			
		10	5	2		10	5	2		10	5	2		10	5	2	
VLA 90 VLE 95	1500	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
VLA 125 VLE 130	1500	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
VLA 150 VLE 155	1500	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
VLA 250 VLE 255	1500	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
VLA 325	1500	0.31	0.52	0.88	1.6	0.4	0.63	0.97	1.5	0.42	0.65	0.96	1.4	0.40	0.60	0.84	1.15
VLA 425	1500	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

FB [m³/h] = fresh water service 新鲜工作水

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

比新鲜水温高 10 °C, 5 °C, 2 °C 的混合作业液

Data regarding the pump size 关于泵规格的数据

Order notes 定单代码

Series + Size 系列+规格	Shaft Sealing 轴密封	Material Design 材料设计
	X Standard Mechanical Seal P 标准机械密封 gasket Perbunan 丁腈橡胶垫圈 Q Standard mechanical seal V 标准机械密封 O-rings Viton O 型圈为氟橡胶 Q Special mechanical seal M 特殊机械密封 O-rings Viton encapsulated with Teflon O 型圈为氟橡胶外包聚四氟乙烯 E Special mechanical seal V 合金机械密封, 非标定制	0K Main parts HT250 主要零件材质为铸铁 Impeller 304 叶轮为 304 不锈钢 SZ Main parts from HT250 主要零件材质为铸铁 Impeller and guide disc from 316 叶轮和导流盘为 316 不锈钢 4B Main parts from 316 主要零件材质为 316 不锈钢
VLA 90 / 95 VLE 125 / 130 150 / 155	QV, QM, EV	0K, 4B, SZ
VLA 250 / 255 VLE 325 425	QV, QM, EV	0K, 4B, SZ

Motor and Coupling data 电机和联轴器数据

Series+size 系列+规格	Motor 电机						Coupling 联轴器	
	Y-voltage Y-电压 V +/- 5%	Power 功率 kW	Length 长 mm	Weight 重量 Kg	Size 规格	Motor- design 电机代码	Size 规格	Weight 重量 (Kg)
VLA 90 / VLE 95	380/220	2.2	367	43.2	100 L1	E31	XL4- φ 28/ φ 28	2
		3	367	47.2	100 L2	E32	XL4- φ 28/ φ 28	2
VLA 125 / VLE130	380/220	3	367	47.2	100 L2	E32	XL4- φ 28/ φ 28	2
		4	402	60	112 M	E33	XL4- φ 28/ φ 28	2
VLA 150 / VLE 155	660/380	4	402	60	112 M	E33	XL4- φ 28/ φ 28	2
		5.5	430*	70*	132 S	E34	XL4- φ 28/ φ 38	4.2
VLA 250 / VLE 255	660/380	5.5	430	70	132 S	E34	XL6- φ 38/ φ 38	4.2
VLA 325	660/380	7.5	470	90	132M	E35	XL6- φ 38/ φ 38	4.2
		11	535*	124*	160 M	E36	XL6- φ 38/ φ 42	4.1
VLA 425	660/380	11	505*	122*	160 M	E35	XL6- φ 38/ φ 42	4.1
		15	560*	122*	160 L	E37	XL6- φ 38/ φ 42	4.1

* included intermediate ring 包括转接环

Motor dimension and weight base on Motor manufacturer 电机重量和尺寸, 取决于电机制造厂家, 以上数据仅供参考

Example for ordering: 定单范例

The pump size VLA 250 in cast iron with impeller in stainless steel with standard mechanical seal prepared to accept a 5.5kW motor has the order code: VLA 250 -0K -QV-E34. Motor, motor feet and coupling are not included in this code, and must be ordered separately if motor provided by customer.

配不锈钢叶轮, 标准机械密封和5.5kW电机的VLA 250铸铁泵订单代码为: VLA 250 -0K -QV-E34。如果客户自配电机, 电机底脚和联轴器并不包括在这个代码中, 必须单独订购。

Please indicate if you require a standard motor or other motors on request, the required voltage, the required motor frequency and if you need motor feet.

如果需要标准电机或是其它类型电机, 请单独注明电机电压、电机频率。



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