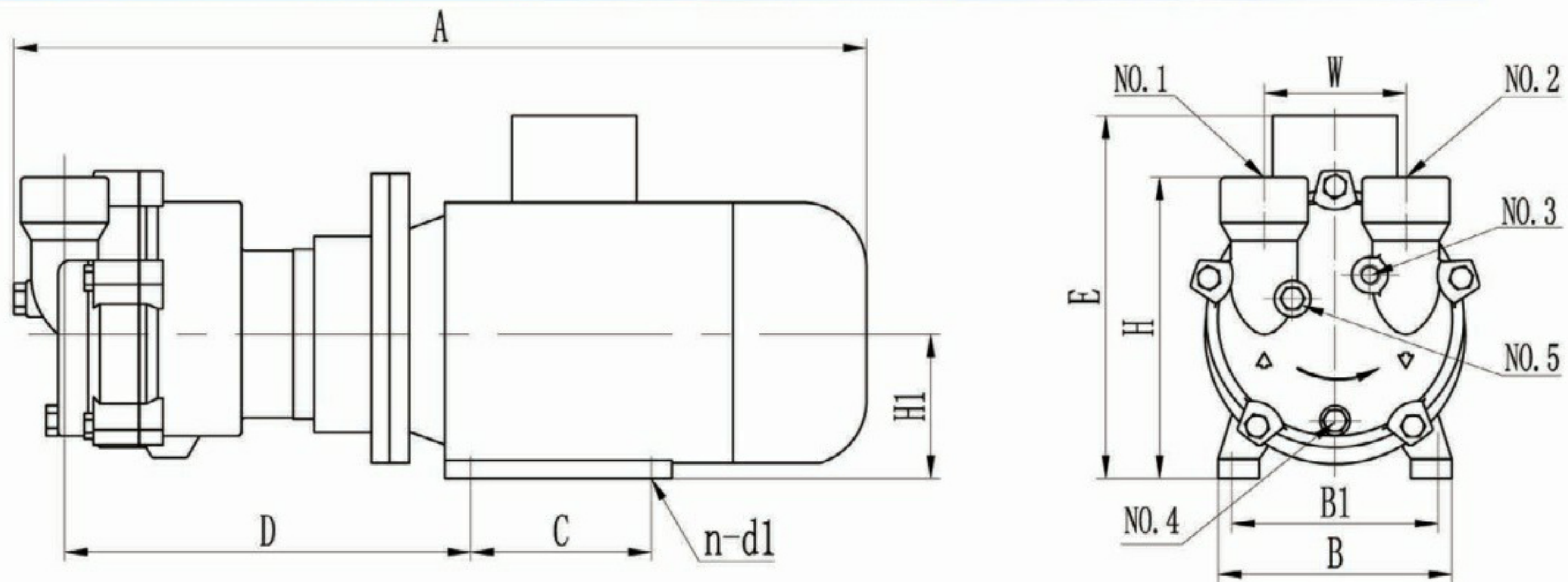
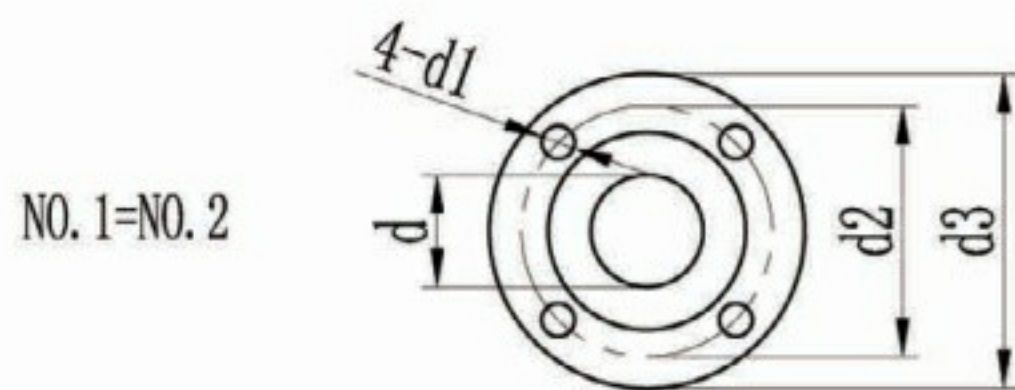
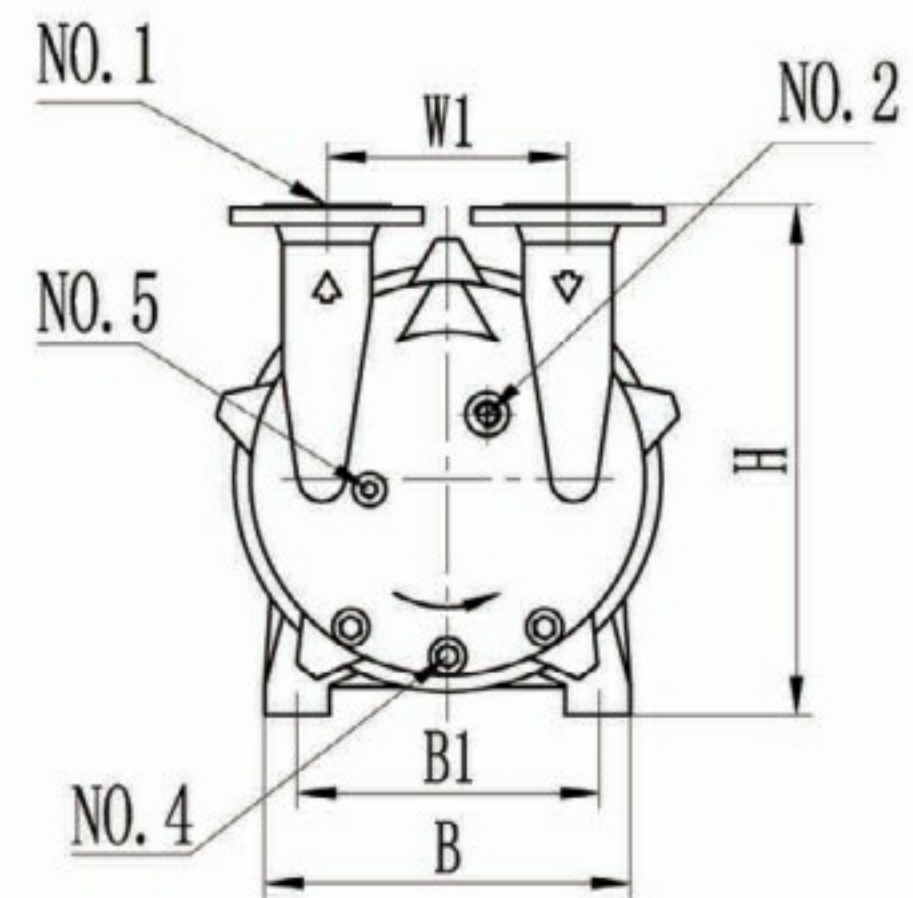
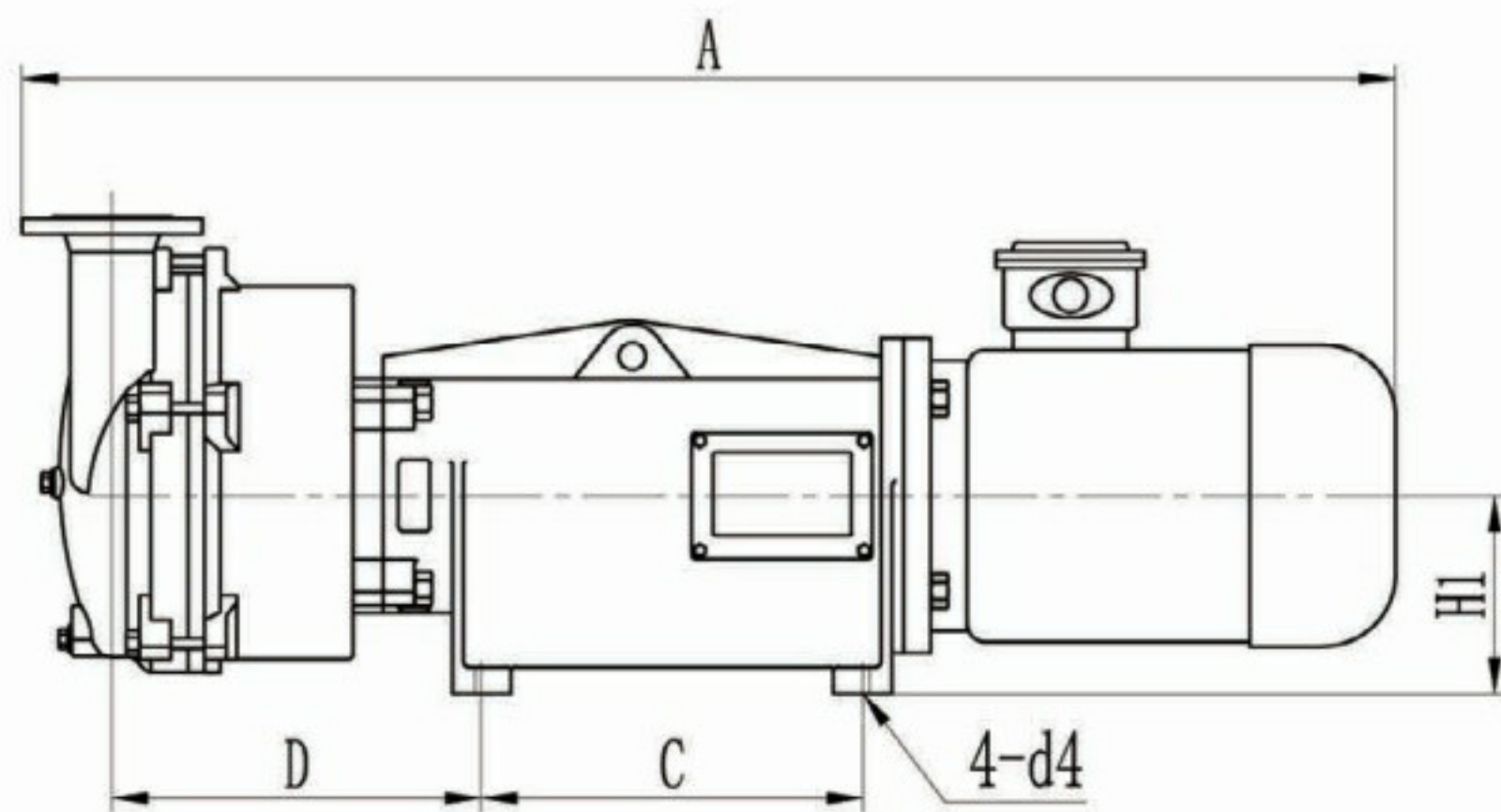


## 2BV6-070/071 外形尺寸图 / 2BV6 Series Dimension Drawing



No.1 排气口 discharge port    No.2 进气口 suction port    No.3 供水口 water supply    No.4 放水口 water outlet    No.5 气蚀保护接口 anti-cavitation connection

型号	A	B	B1	C	D	E	H	H1
2BV6-070	680	200	160	140	315	325	234	100
2BV6-071	707	245	190	140	329	420	246	112
型号	W	n	d1	No. 1	No. 2	No. 3	No. 4	No. 5
2BV6-070	110	4	12	G1 1/2"	G1 1/2"	G3/8 "	G1/4 "	G3/8 "
2BV6-071	110	4	12	G1 1/2"	G1 1/2"	G3/8 "	G1/4 "	G3/8 "



## 2BV6 系列外形尺寸图 / 2BV6 Series Dimension Drawing

No.1 排气口 discharge port  
 No.2 进气口 suction port  
 No.3 供水口 water supply  
 No.4 放水口 water outlet  
 No.5 气蚀保护接口 anti-cavitation connection

型号	A	B	B1	C	D	H	H1	W
2BV6-060	631	200	175	135	186	211	104	110
2BV6-061	688	200	175	135	217	211	104	110
2BV6-110	1043	340	252	248	281	383	163	180
2BV6-111	1216	340	290	325	332	406	185	180
2BV6-121	1264	382	290	325	349	420	185	200
2BV6-131	1455	390	316	417	351	531	220	200
2BV6-161	1615	480	316	417	409	521	220	200
型号	d	d1	d2	d3	d4	No. 3	No. 4	No. 5
2BV6-060	G1"	-----	-----	-----	12	G3/8 "	G3/8 "	G1/4 "
2BV6-061	G1"	-----	-----	-----	12	G3/8 "	G3/8 "	G1/4 "
2BV6-110	50	19	123	160	13	G3/8 "	G3/8 "	G1/2 "
2BV6-111	50	19	123	160	14	G3/8 "	G3/8 "	G1/2 "
2BV6-121	65	19	145	182	14	G3/8 "	G3/8 "	G3/4 "
2BV6-131	65	19	145	182	14	G3/8 "	G3/8 "	G3/4 "
2BV6-161	80	22	156	200	14	G3/4 "	G3/8 "	G3/4 "

## ● DLV 系列双级水环真空泵

DLV Series Double-stage Water Ring Vacuum Pumps

● DLV 系列双级水环式真空泵是我公司在 2SK 系列的基础上，结合德国双级泵设计指标研发的新型双级水环式真空泵。DLV 系列水环真空泵设计两级压缩过程，在较高的真空度范围内抽速平稳，或者在很大的抽气速率范围内维持较高的真空度。在较高真空工作状态时效率较单级水环泵提高 35% 至 40%，能耗也相应降低。



DLV series two-stage water-ring vacuum pump is a new type of two-stage water-ring vacuum pump developed by our company on the basis of 2SK series and combined with the design index of German two-stage pump. DLV series water ring vacuum pump is designed with a two-stage compression process, and the pumping speed is stable in a higher vacuum degree range, or maintains a high vacuum degree in a large pumping speed range. Compared with the single-stage water ring pump, the efficiency is increased by 35% to 40% in a higher vacuum working state, and the energy consumption is correspondingly reduced.

## ● 产品优势

Product Features

● 更宽的吸入压力范围，对比其他的双级泵的吸入压力 50mbar-150mbarA。DLV 系列可在 25mbar ~ 1013mbar 之间工作；更低的能耗，比传统产品节能 15%-20%。

多种规格，满足各种工艺需求。

碳钢、不锈钢、双相钢、钛材等多种材质可选。满足严苛的应用环境。

泵的供货范围可以有多种选择，诸如：泵头；整泵，包括吸气连通管，汽水分离器及液路管件；真空泵机组，包括电机和底座；成套机组，包括全部闭环系统所需的辅助设备；入口压力低于 33mbar (绝对压力) 时的二 = 级，或多级真空系统。

单、双端面机械密封，多种冲洗方案，

精密铸件、高标准配件、进口轴承、高效节能，品质保证。

Wider suction pressure range, compared with other two-stage pumps, the suction pressure is 50mbar-150mbarA. DLV series can work between 25mbar ~ 1013mbar; lower energy consumption, 15%-20% energy saving than traditional products.

A variety of specifications to meet various process requirements.

Carbon steel, stainless steel, duplex steel, titanium and other materials are available. Meet the harsh application environment.

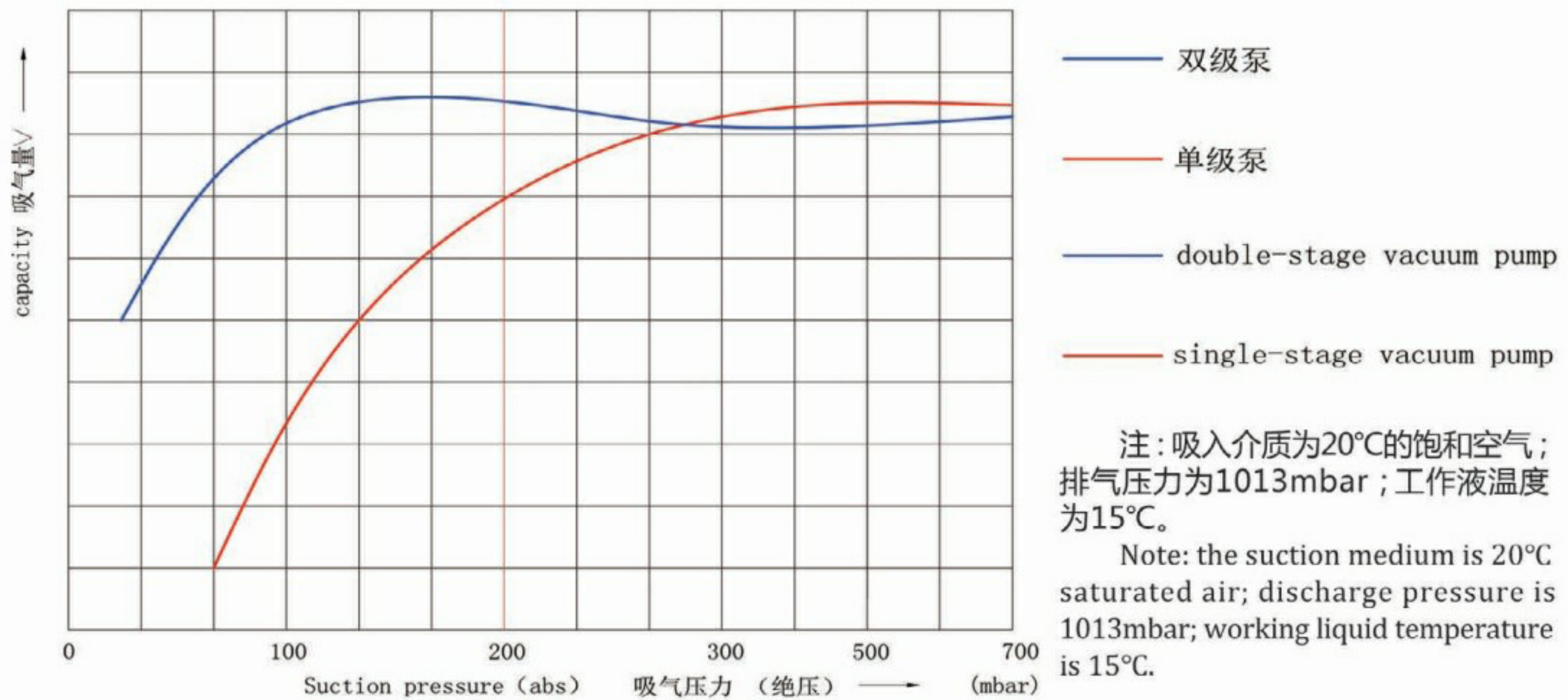
The scope of supply of the pump can have various options, such as: pump head; complete pump, including suction connecting pipe, steam-water separator and liquid pipe fittings; vacuum pump unit, including motor and base; complete unit, including all closed-loop system requirements Auxiliary equipment; two-stage, or multi-stage vacuum system when the inlet pressure is lower than 33mbar (absolute pressure).

Single and double mechanical seals, a variety of flushing schemes,

Precision castings, high standard accessories, imported bearings, high efficiency and energy saving, quality assurance.

## 双级液环泵与单级液环泵的比较

### Compare Double-stage Pump With Single-stage Liquid Ring Pump



从上图曲线中可以看出，单级水环真空泵适合在真空度要求不高的工况下使用，其吸气量较大。但在较高真空度范围内工作的时候，吸气量严重衰减(小于200mbar开始急剧衰减，小于100mbar时衰减严重)，在此工况下，真空泵效率极低，功耗非常高。而双级水环真空泵，在较高的真空度范围内能获得更大的吸气量，在高真空工作状态时效率比单级水环泵高30%到40%，耗能相应降低，因此双级水环泵更适合要求较大的抽气量同时需要维持较高真空度的工况。

From the performance curve above we can see that, single stage pump is suitable to work in a condition which do not ask for high vacuum, and its capacity is large; however in relative high vacuum, its capacity declines obviously (it declines rapidly below 200mbar and below 100mbar it is seriously declined), under this condition, the pump efficiency is quite low but cost more energy. However for double stage pump, it has larger capacity in relative high vacuum, and in high vacuum its efficiency is 30%-40% higher than single stage ones and consume less energy. Therefore double stage pump is more suitable than the single one to work in the condition asking for high vacuum and large capacity at the same time.

## 应用领域 Fields of Application

DLV 系列特别适用于食品、化工、制药、电力、造纸、纺织、冶金等各种行业中的真空干燥、蒸发、蒸馏、浓缩、过滤、脱水脱气等工艺。

DLV series pumps are very suitable for the process of vacuum drying, evaporation, distillation, concentration, filtering, degassing in industry of food, pharmacy, chemical, power plant, paper making, textile, metallurgy etc.

## DLV 系列液环真空泵技术参数 ( 50HZ电机 )

### DLV Technical Parameters ( 50Hz Motor )

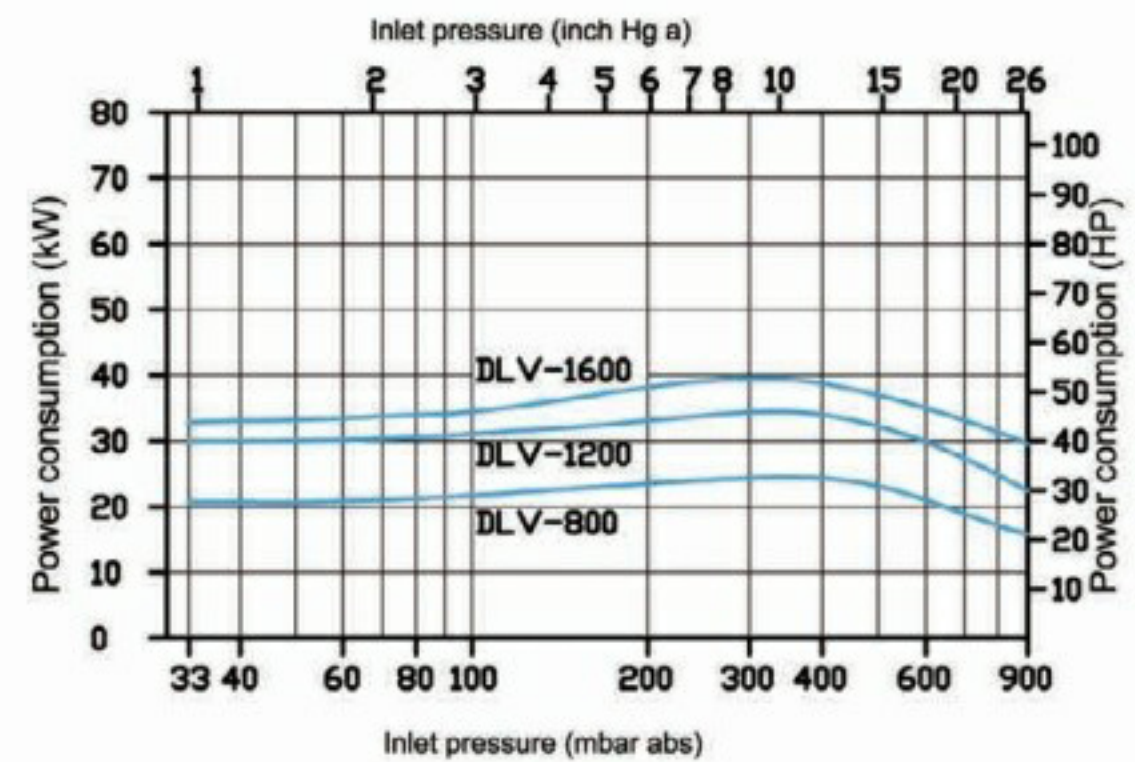
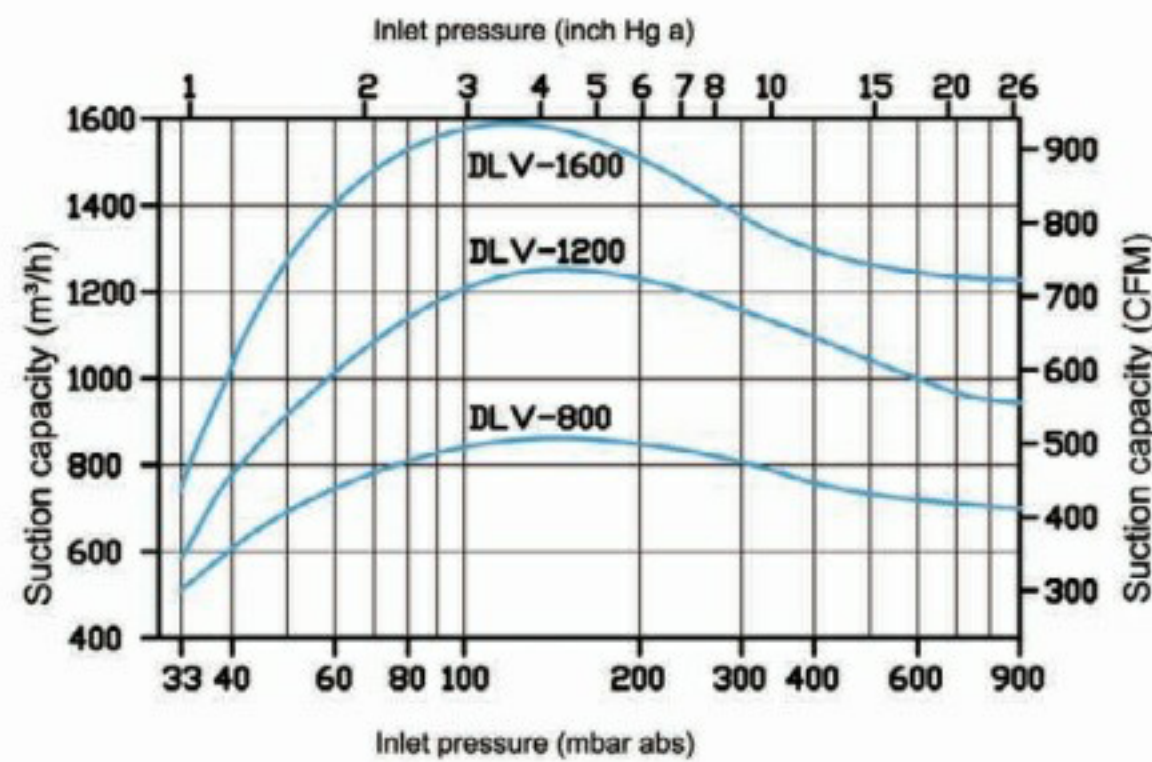
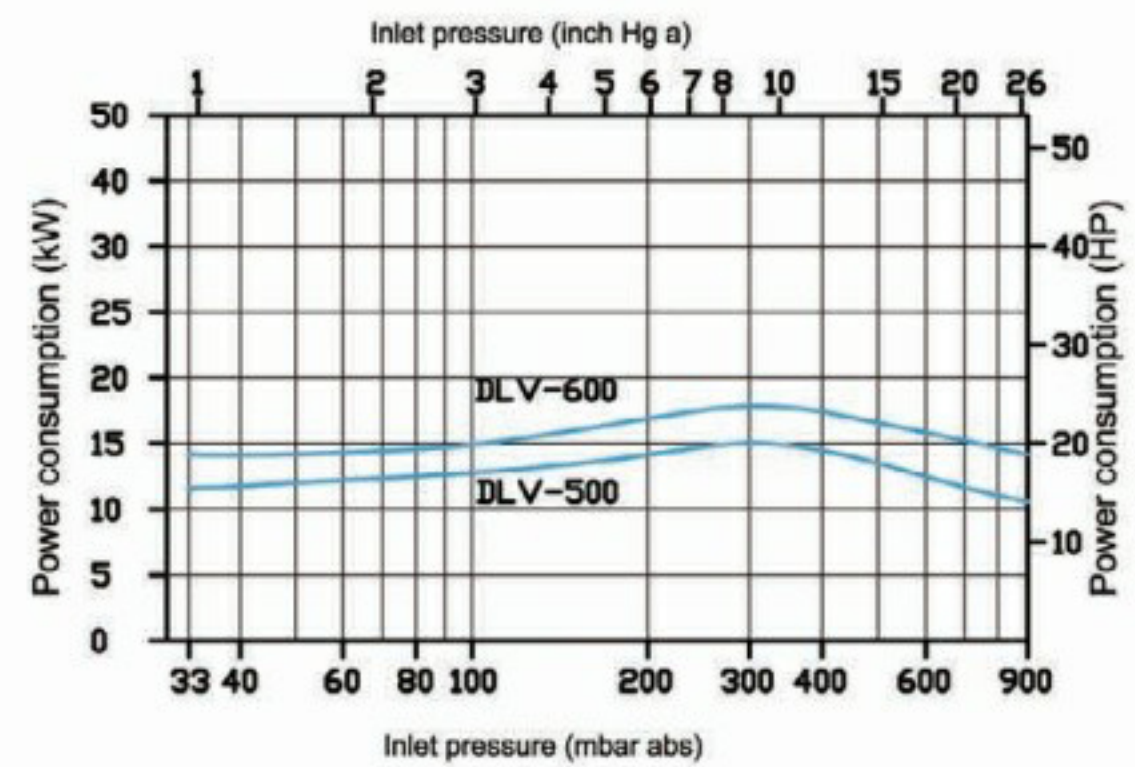
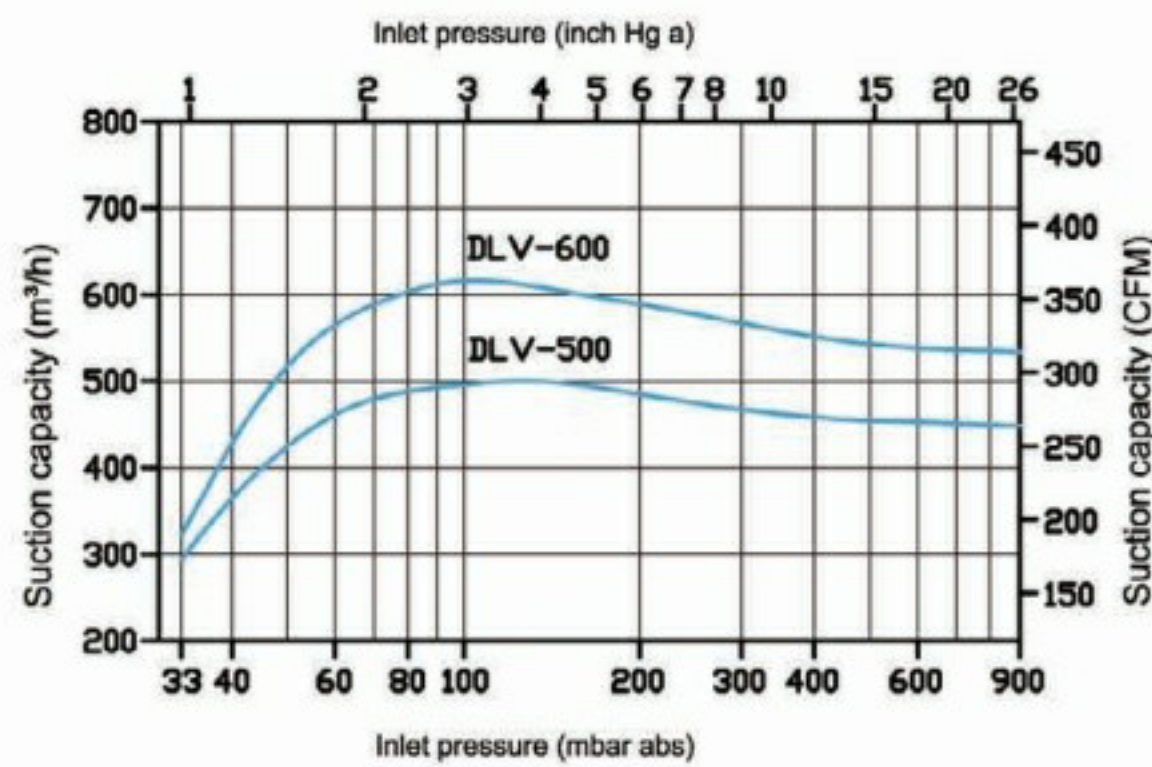
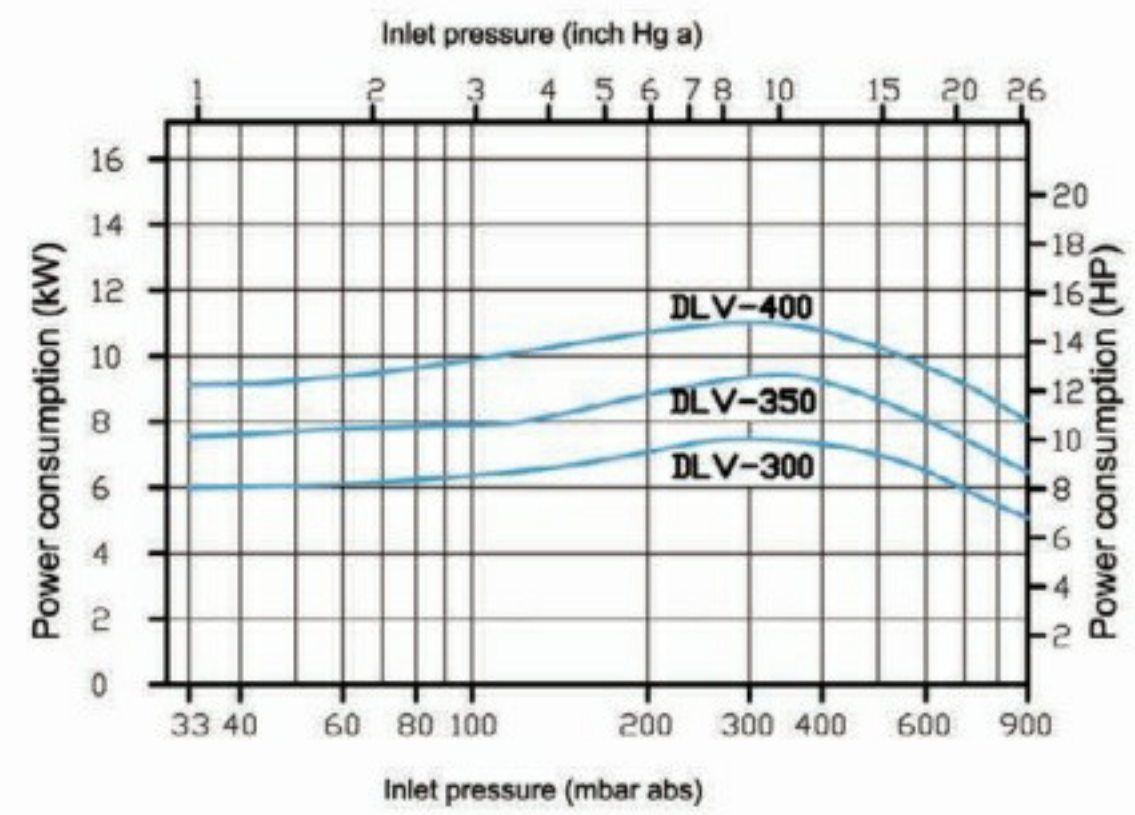
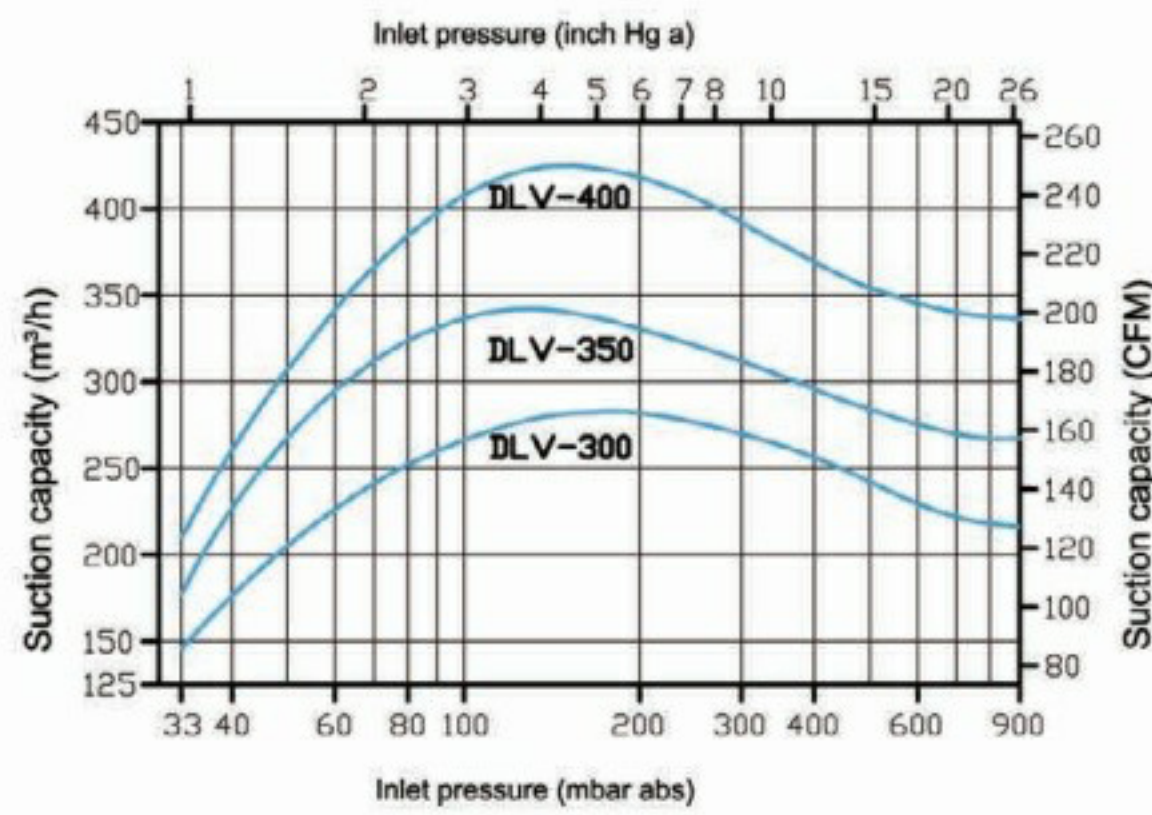
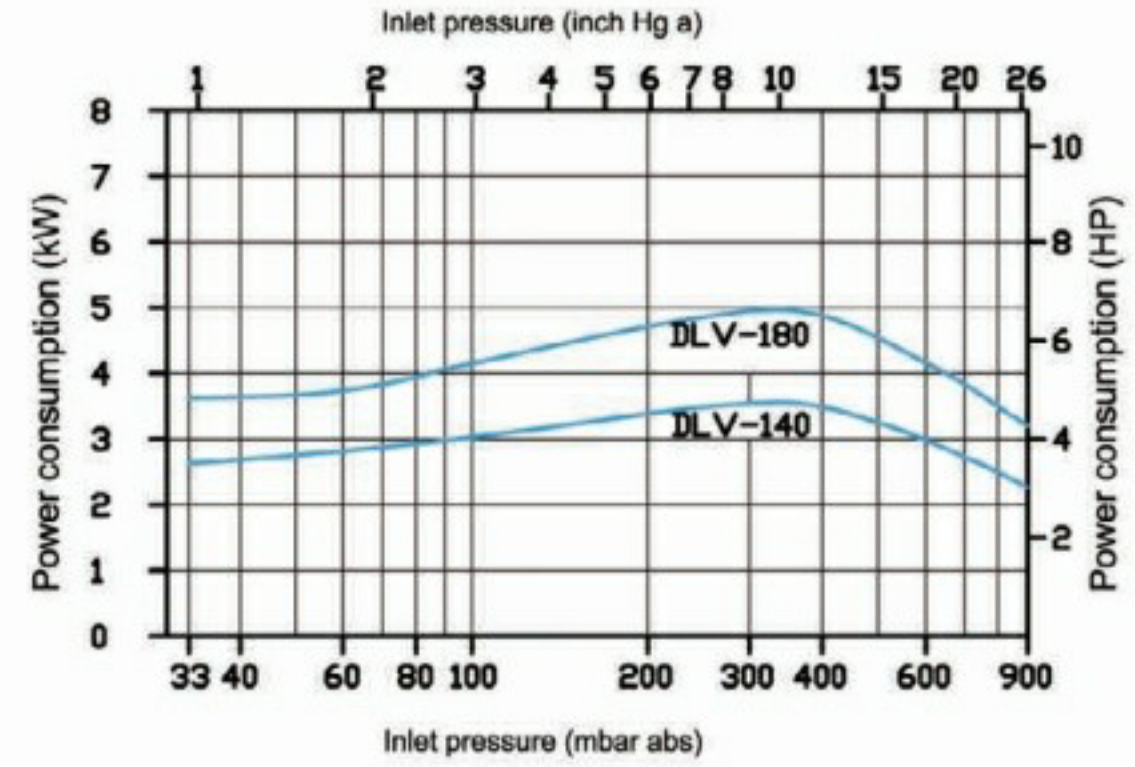
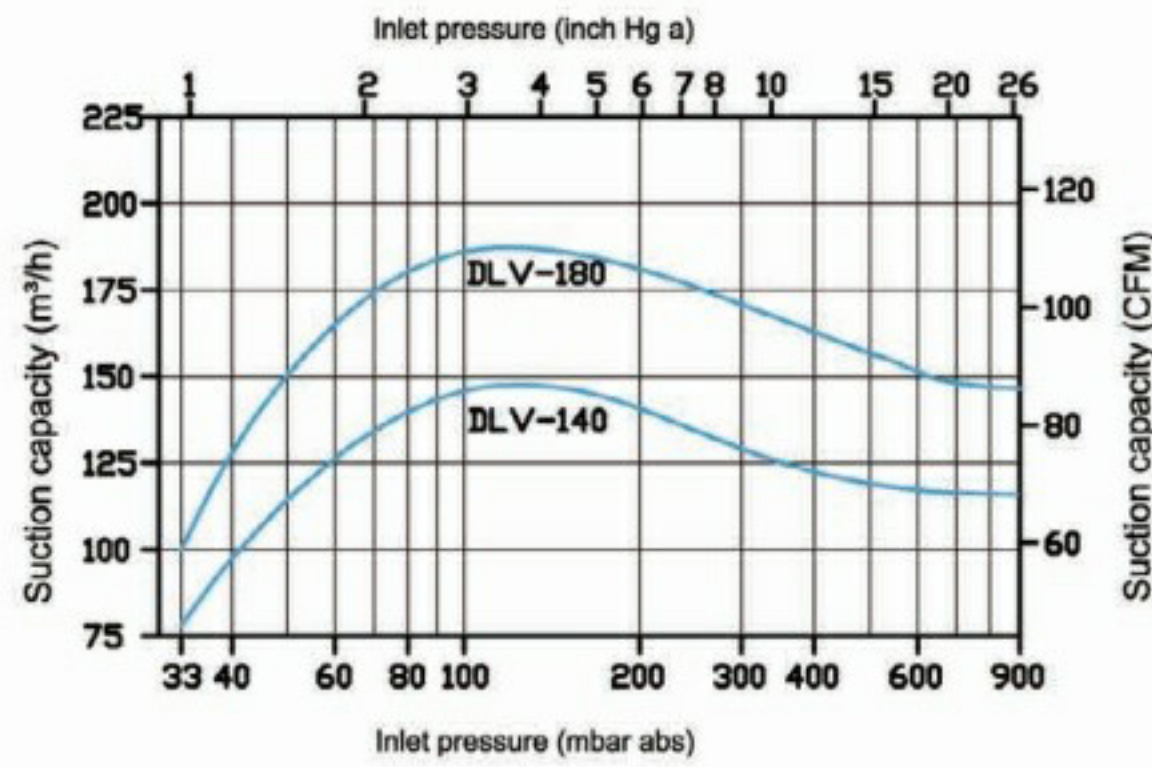
型号 Model	极限压力(hpa) Ultimate pressure	最大吸气量(m <sup>3</sup> /h) Max. suction capacity	转速(rpm) Speed	电机功率(kw) Motor power	吸排气口(mm) Inlet/Outlet port	传动方式 Drive model
DLV140	33	145	1450	4.0	DN40	直连 Direct
DLV180	33	186	1450	5.5	DN40	直连 Direct
DLV300	33	270	1450	7.5	DN50	直连 Direct
DLV350	33	342	1450	11.0	DN50	直连 Direct
DLV400	33	425	1450	15.0	DN50	直连 Direct
DLV500	33	501	1450	18.5	DN65	直连 Direct
DLV600	33	616	1450	22.0	DN65	直连 Direct
DLV800	33	862	975	30.0	DN100	直连 Direct
DLV1200	33	1252	975	37.0	DN100	直连 Direct
DLV1600	33	1589	975	45.0	DN100	直连 Direct

## DLV 系列液环真空泵技术参数 ( 60HZ电机 )

### DLV Technical Parameters ( 60Hz Motor )

型号 Model	极限压力(hpa) Ultimate pressure	最大吸气量(m <sup>3</sup> /h) Max. suction capacity	转速(rpm) Speed	电机功率(kw) Motor power	吸排气口(mm) Inlet/Outlet port	传动方式 Drive model
DLV140	33	174	1750	5.5	DN40	直连 Direct
DLV180	33	223	1750	7.5	DN40	直连 Direct
DLV300	33	314	1750	11.0	DN50	直连 Direct
DLV350	33	411	1750	15.0	DN50	直连 Direct
DLV400	33	475	1750	18.5	DN50	直连 Direct
DLV500	33	590	1750	22.0	DN65	直连 Direct
DLV600	33	739	1750	30.0	DN65	直连 Direct
DLV800	33	1032	1175	37.0	DN100	直连 Direct
DLV1200	33	1407	1175	45.0	DN100	直连 Direct
DLV1600	33	1717	1175	75.0	DN100	直连 Direct

## DLV性能曲线 / DLV Performance Curve---50HZ Motor

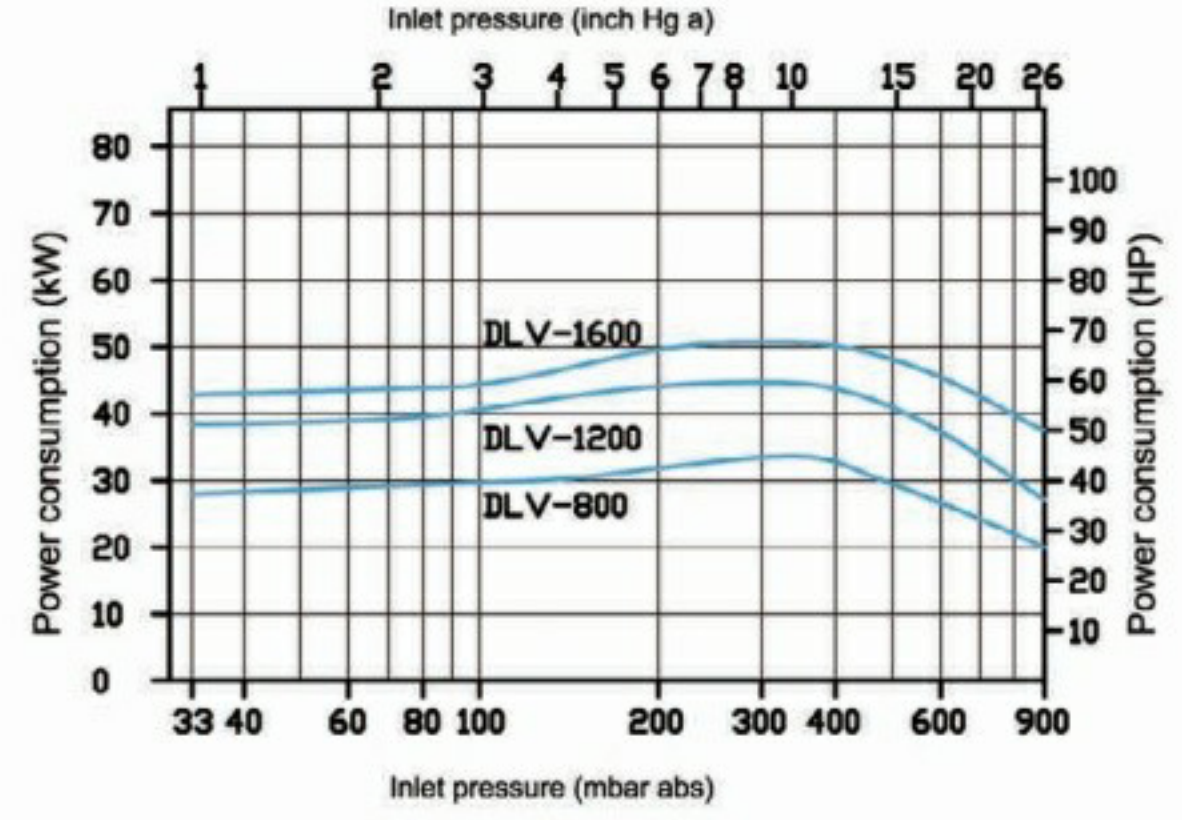
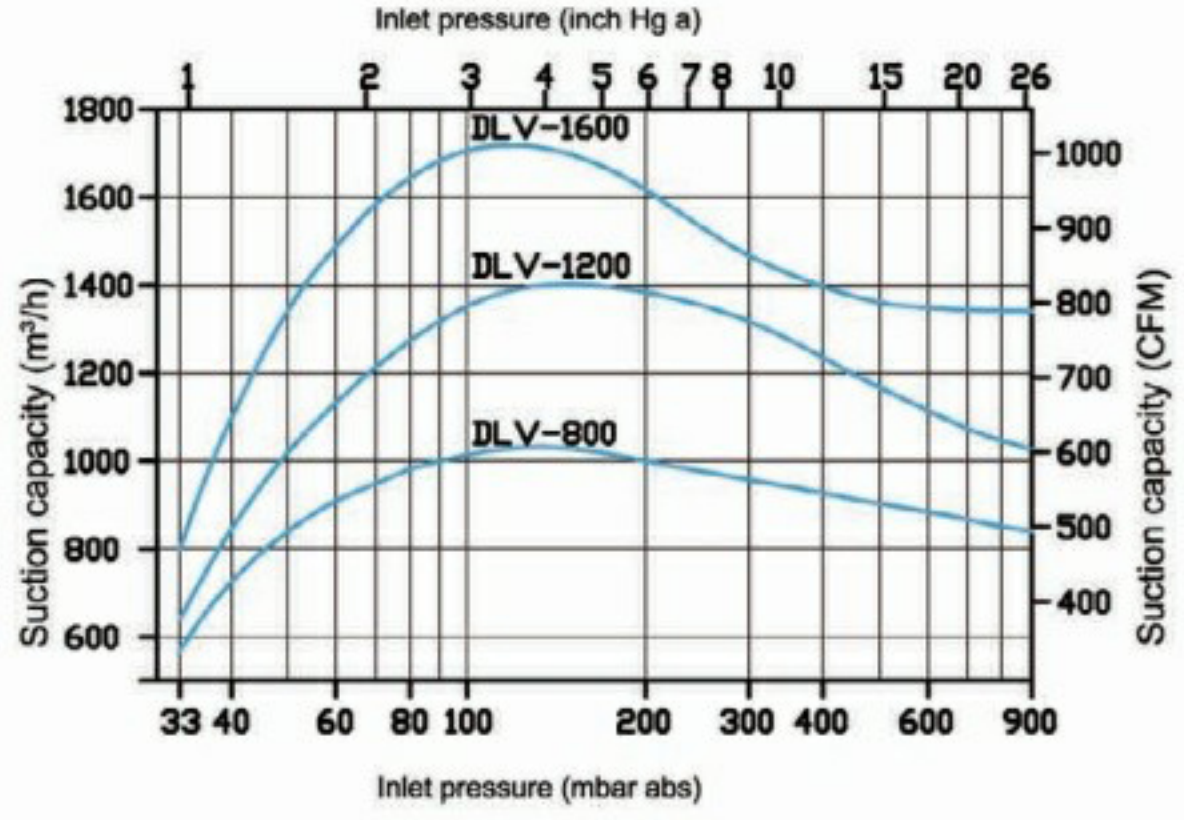
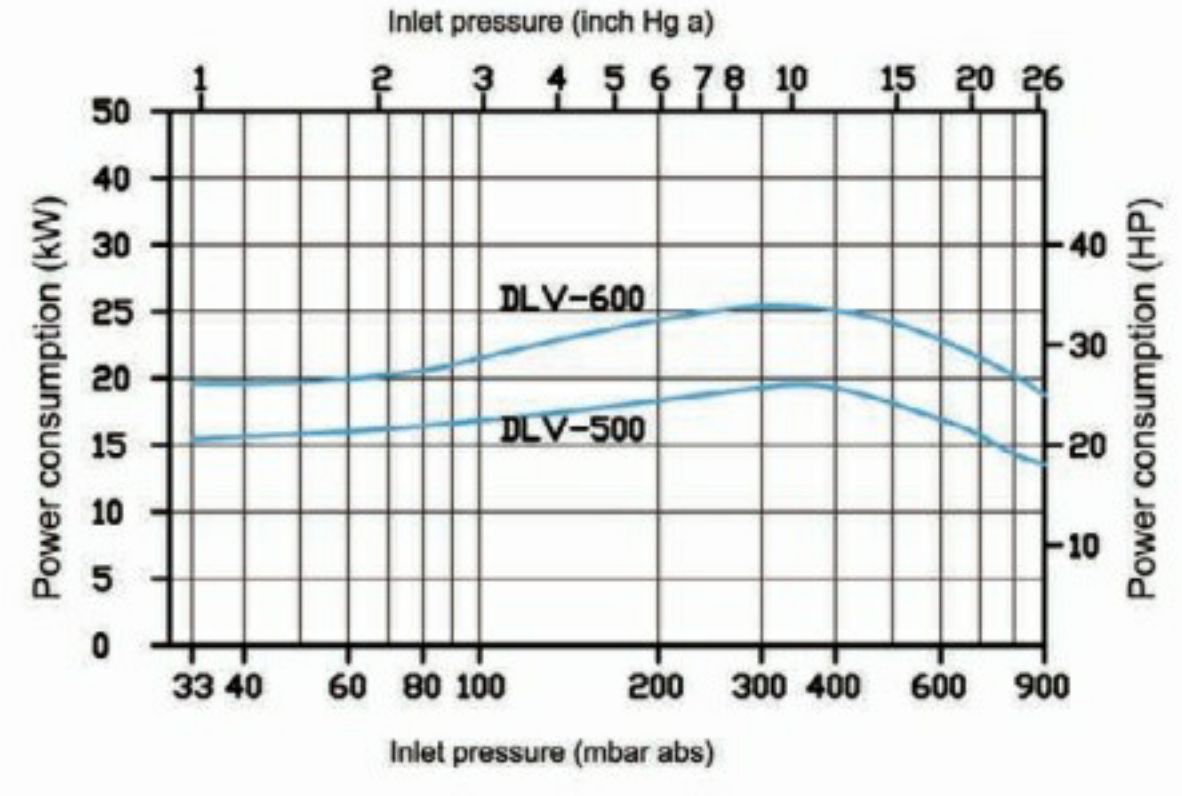
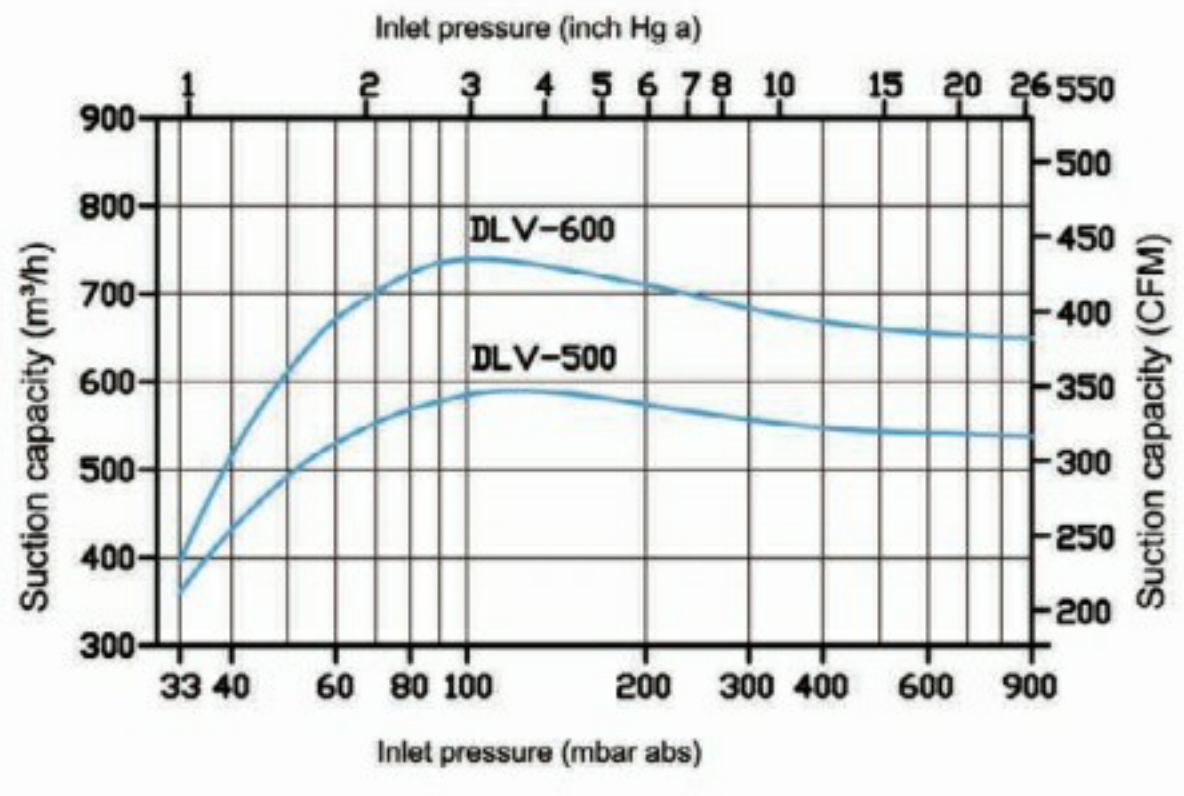
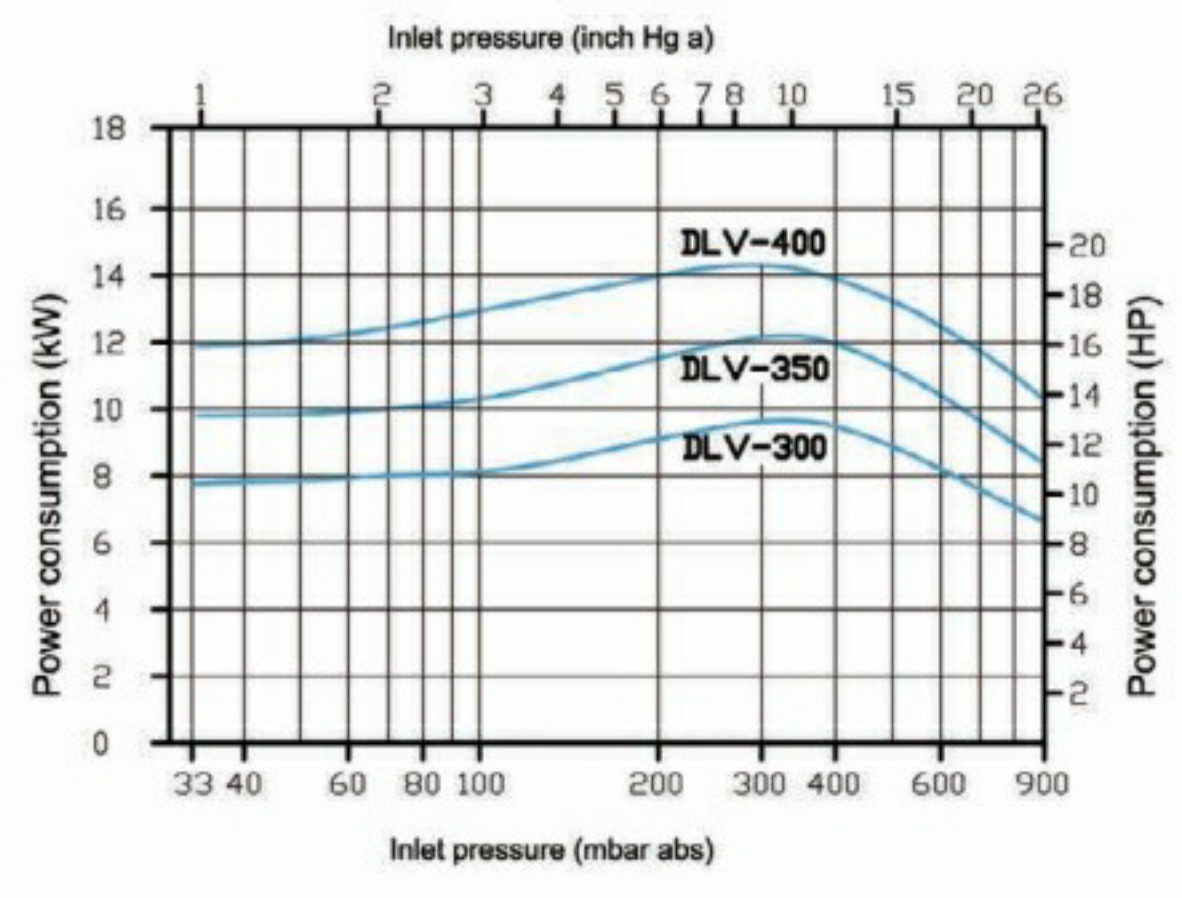
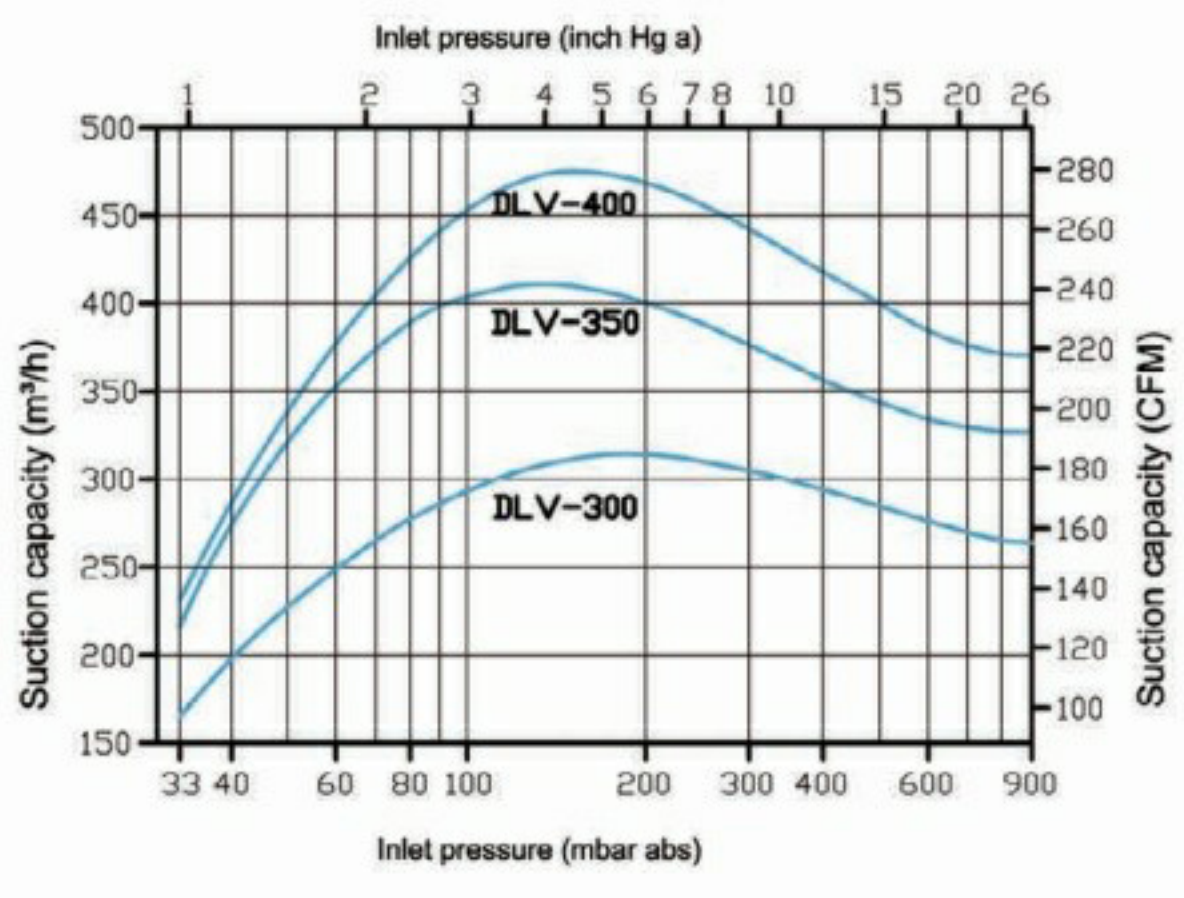
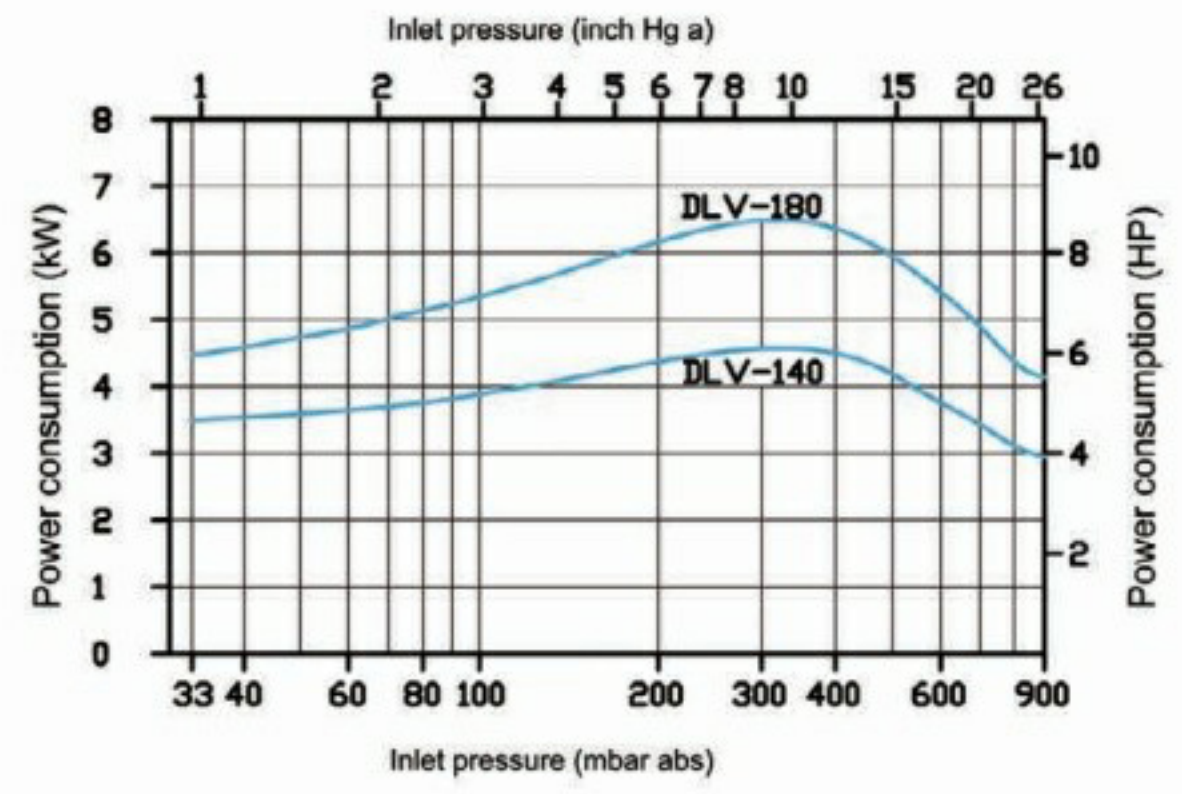
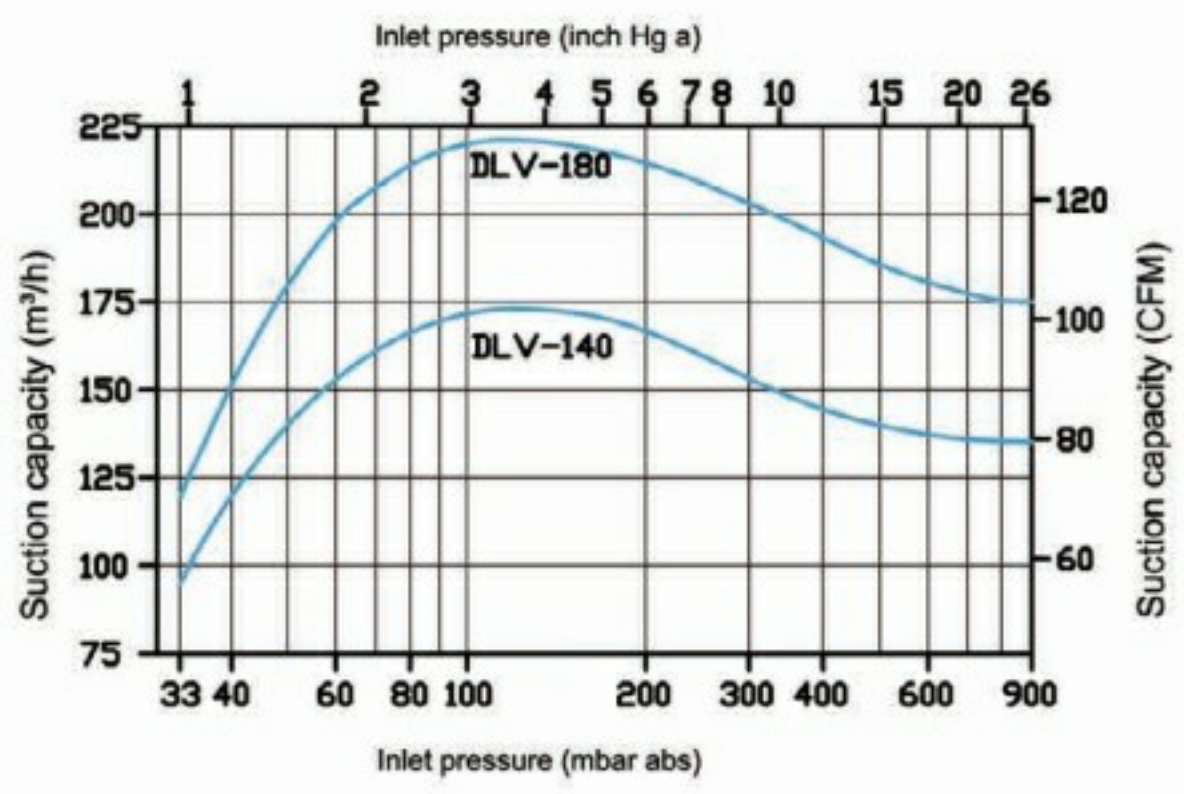


注：1、吸入介质为20°C的干空气，排气压力为1013mbar，工作液为15°C的水；  
2、性能允差为± 10%。

Note:1. This performance curve is obtained in the state of: suction medium is saturated air 20°C, discharge pressure 1013 mbar, working liquid water temperature 15°C.

2. Tolerance ± 10%.

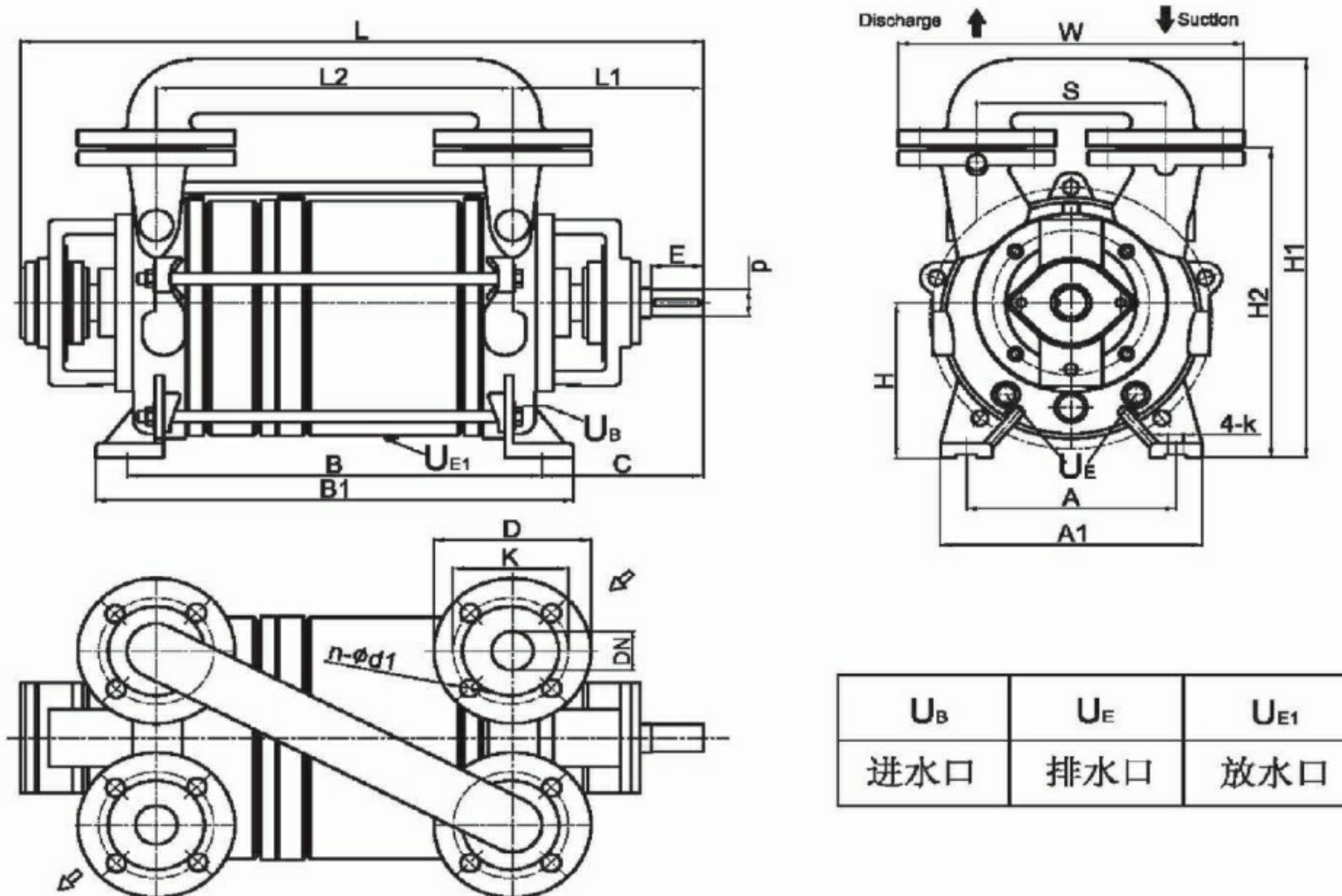
## DLV性能曲线 / DLV Performance Curve----60HZ Motor



注：1、吸入介质为20℃的干空气，排气压力为1013mbar，工作液为15℃的水；  
2、性能允差为± 10%。

Note:1. This performance curve is obtained in the state of: suction medium is saturated air 20°C, discharge pressure 1013 mbar, working liquid water temperature 15°C.  
2. Tolerance ± 10%.

## DLV系列外形尺寸图 / DLV Dimension Drawing



型号 Model	L	L1	L2	B	B1	C	E	d	H	H1	H2
DLV140	582	183	269	329	385	153	50	28	160	412	320
DLV180	652		339	399	455						
DLV300	816	277	335	385	435	252	80	38	212	512	402
DLV350	856		375	425	475						
DLV400	916		435	485	535						
DLV500	1014	287	501	581	641	247	80	38	225	573	450
DLV600	1080		567	647	707						
DLV800	1233	422	540	620	694	382	140	60	320	776	595
DLV1200	1383		690	770	844						
DLV1600	1483		790	870	944						

型号 Model	W	S	A	A1	DN	D	K	D1	n	UB	UE	UE1
DLV140	330	180	200	250	40	150	110	18	4	G 1/2"	G1/4"	G1/8"
DLV180												
DLV300	395	230	240	302	50	165	125	18	4	G 1"	G1/4"	G1/4"
DLV350												
DLV400												
DLV500	425	240	270	340	65	185	145	18	4	G 1"	G1/2"	
DLV600												
DLV800	590	370	380	480	100	220	180	18	8	G 2"	G1/2"	
DLV1200												
DLV1600												

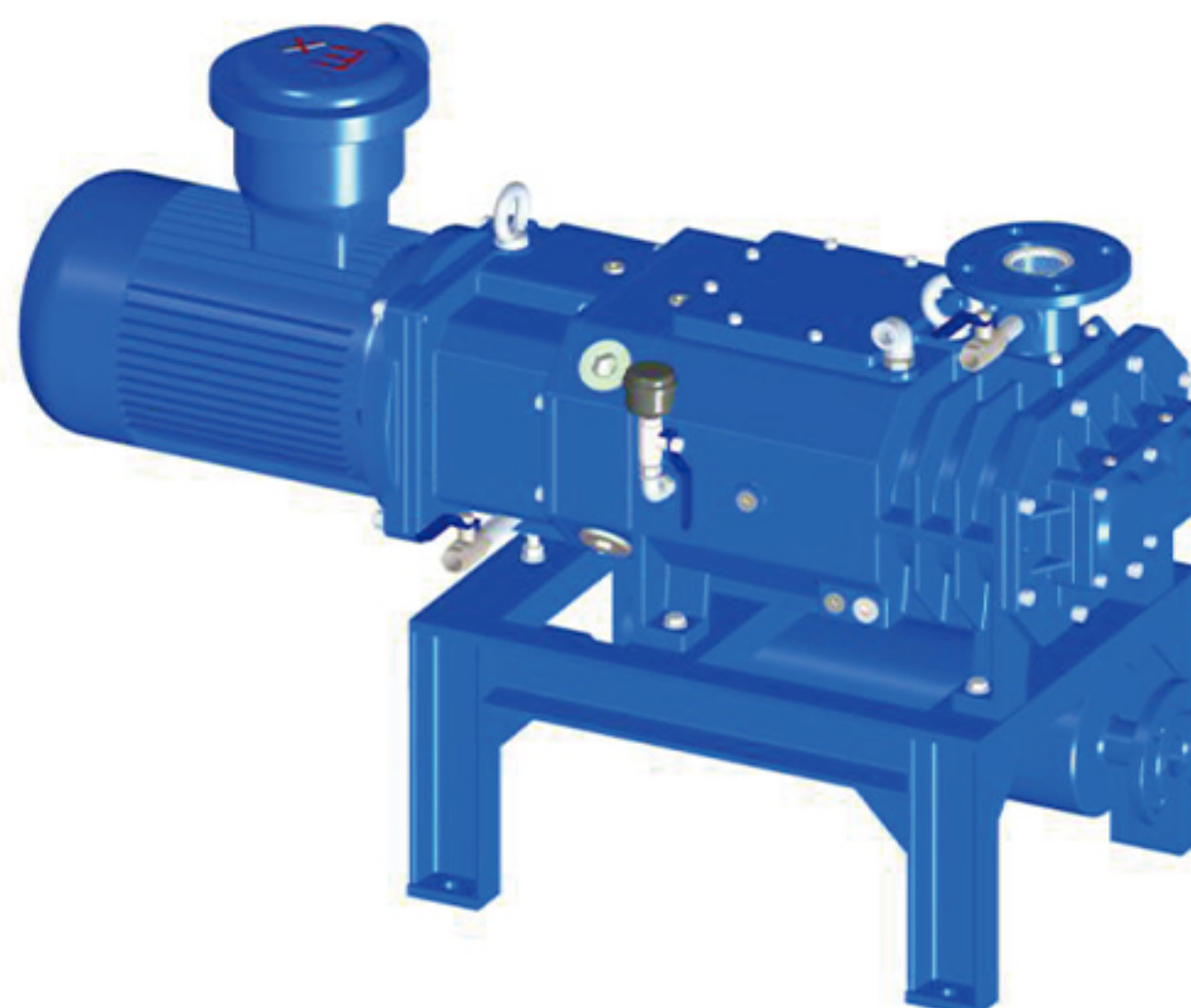
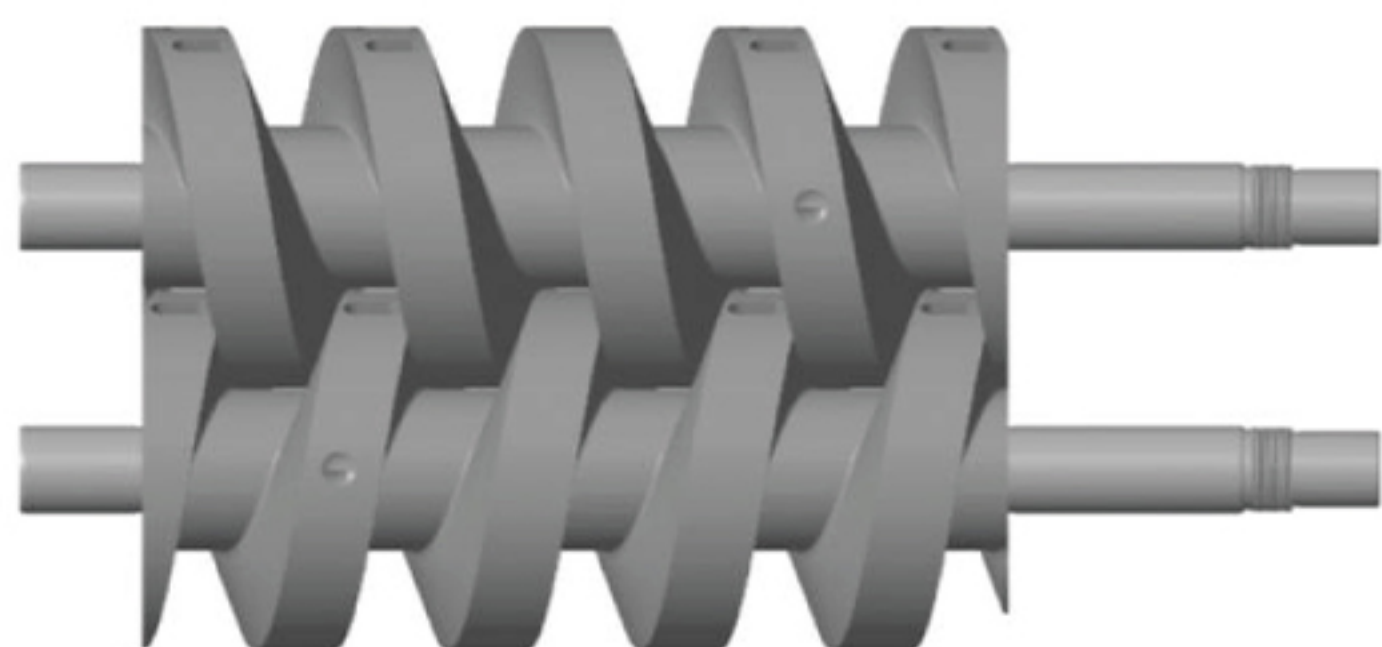
## LG 型等螺距螺杆真空泵系列

### 优点:

- 螺杆型线采用自平衡设计，平衡孔少，密封性能好，温度降低 10%，抽气效率提高 15%。
- 全密封结构，齿轮箱与电机隔开，无漏油现象，安全可靠。
- 体积小，结构简单，维修方便。
- 泵腔内无油，对真空系统无污染，提高产品质量。
- 泵腔内无油，解决油乳化及频繁更换工作液、频繁维护和保养等问题，节约使用成本。
- 干式运行，不会产生废水和废油，有利环保，节约石油资源。
- 能抽除大量水蒸汽和少量粉尘的气体。增加附件后，也能抽除易燃、易爆及放射性等气体。
- 极限真空达到 5Pa，适用于中、低真空，与罗茨泵串联可配成无油中真空抽气机组，与分子泵串联可组成无油高真空机组。
- 采用防腐涂层处理后，特别适用于制药、化工工艺中的产品蒸馏、干燥、脱气等使用场合。

### 主要性能参数:

螺杆真空泵型号		LG30	LG50	LG70	LG110	LG150	LG200
抽气速率(50Hz/60Hz)	升/秒(L/s)	30/36	50/60	70/84	110/130	150/180	200/240
	米 <sup>3</sup> /小时(m <sup>3</sup> /h)	108/130	180/216	250/300	400/475	540/650	720/860
极限全压力(50Hz/60Hz)	帕(Pa)	5/1	5/1	5/1	5/1	5/1	5/1
最大排气压力	巴(bar)	1.2	1.2	1.2	1.2	1.2	1.2
配用电动机功率	千瓦(kW)	4	5.5	7.5	11	15	22
转速(50Hz)	转/分(rpm)	2890	2900	2900	2930	2930	2940
连接	进气口径	毫米(mm)	50	65	65	100	100
	排气口径	毫米(mm)	40	40	40	65	65
冷却水	流量	升/分钟(L/min)	4	5	8	10	12
	压力	兆帕(MPa)	0.15~0.3				
	出水温度	摄氏度(°C)	≤40				
	接口		R3/8"	R1/2"			
密封吹扫气源压力	兆帕(MPa)	0.05~0.1					
噪音	分贝(dB(A))	≤72	≤76	≤78	≤78	≤80	≤80
重量(包括排气罐)	千克(kg)	300	380	410	680	700	800



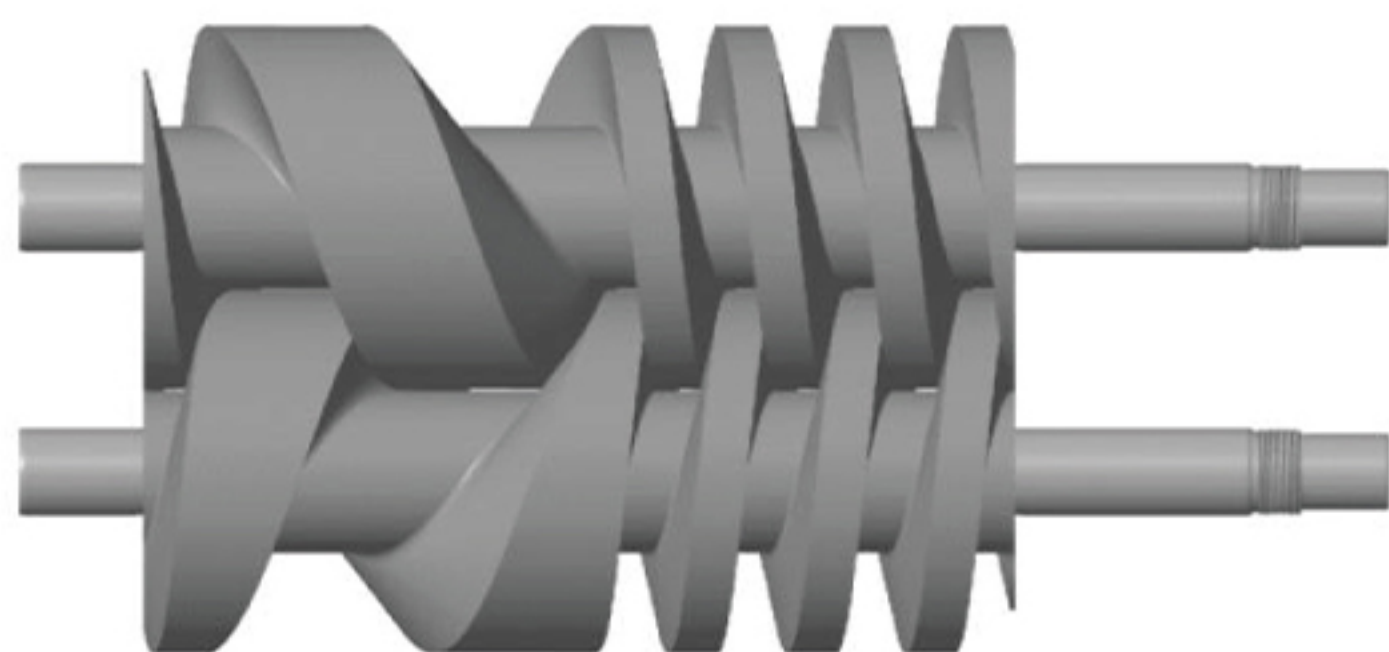
## LGB 型变螺距螺杆真空泵系列

### 优点:

- 采用渐变式螺杆型线，能耗比等螺距降低 30%。
- 极限真空时，温度降低 50%。
- 极限压力：最高可达到1Pa以内。
- 排气喘震改善，比等螺距更加平缓。
- 振动、噪音：螺杆型线采用自平衡设计，低振动、低噪音、高效率。
- 维护、维修：结构设计简单，维护、维修方便，维护成本低。

### 主要性能参数:

螺杆真空泵型号		LGB50	LGB80	LGB110	LGB150	LGB220	LGB300
抽气速率(50Hz/60Hz)	升/秒(L/s)	50/60	80/96	110/130	150/180	220/260	300/360
	米 <sup>3</sup> /小时(m <sup>3</sup> /h)	180/216	288/345	400/475	540/650	790/950	1080/1300
极限全压力(50Hz/60Hz)	帕(Pa)	5/1	5/1	5/1	5/1	5/1	5/1
最大排气压力	巴(bar)	1.2	1.2	1.2	1.2	1.2	1.2
配用电机功率	千瓦(kW)	4	5.5	7.5	11	15	22
转速(50Hz)	转/分(rpm)	2890	2900	2900	2930	2930	2940
连接	进气口径	毫米(mm)	50	65	65	100	100
	排气口径	毫米(mm)	40	40	40	65	65
冷却水	流量	升/分钟(L/min)	4	5	8	10	16
	压力	兆帕(MPa)	0.15~0.3				
	出水温度	摄氏度(°C)	≤40				
	接口		R3/8"	R1/2"			
密封吹扫气源压力	兆帕(MPa)	0.05~0.1					
噪音	分贝(dB(A))	≤72	≤76	≤78	≤78	≤80	≤80
重量(包括排气罐)	千克(kg)	300	380	410	680	700	800



## 罗茨螺杆真空机组

罗茨螺杆真空机组是由罗茨真空泵为主泵与中间泵、螺杆真空泵为前级泵，同时配有管路、阀门、机架及电器控制箱等组成的无油真空机组。罗茨真空泵与螺杆真空泵工作原理与结构相似，罗茨真空泵与螺杆真空泵组成的机组具有螺杆真空泵的优点，同时通过串联大抽速的罗茨真空泵，成倍增大抽速，提高极限真空度，同时使抽气系统具有较好的节能效果。罗茨螺杆机组真空度高，高真空区内抽气效率高。通过配套的控制系統，机组可以自动启、停，并具有过载、过流、断水等自动保护功能。整个真空机组可以进行防腐处理，使之能用于抽除腐蚀性气体的场合。机组各真空泵采取合理地布置，机组占地面积小，且各泵与中间管路均不易积存异物，在抽除含少量可凝性气体或少量粉尘的气体时具有明显的优势。

根据被抽真空系统的容积大小、工作压力等因素合理配置真空机组，真空机组中各泵之间的抽速比可选取 1:2~1:8 之间，抽速比增大会使真空泵的抽气效率下降，工作压力范围缩小，造成罗茨泵启动延时，从而使预抽时间延长。

### 用途：

罗茨螺杆真空机组真空度高，工作压力范围宽，抽气效率高，过流部分能进行防腐蚀处理，属于无油真空获得设备，适用范围很广，能广泛应用于医药、化工、航空航天、电子、太阳能、冶金、食品等各种行业中，也可用于电力行业的真空浸渍、真空干燥工艺中，还是真空镀膜、真空冶炼、真空热处理、真空滤油、冷冻干燥、航空模拟试验等工艺的理想抽真空设备；机组适用于化工、制药行业的高真空蒸馏、真空蒸发、脱水结晶等工艺中；特别在化工行业，单罗茨螺杆机组可以替代双罗茨及三罗茨水环机组。特别适用于要求无油蒸汽污染的半导体行业，同时也适用于含有大量水蒸汽及少量粉尘的场合。

### 机组型号表示方法：

#### 例 1: JZPLG600-4

(ZJP600+LG150)

J-----机组（汉语拼音“j”第一个字母）

ZP-----主泵为 ZJP 型罗茨真空泵

LG-----前级泵为 LG 型等螺距系列螺杆真空泵

600---主泵抽速 600L/s

4-----主泵与前级泵抽速之比

#### 例 2: JZPLB2500-43

(ZJP2500+ZJP600+LGB220)

J-----机组（汉语拼音“j”第一个字母）

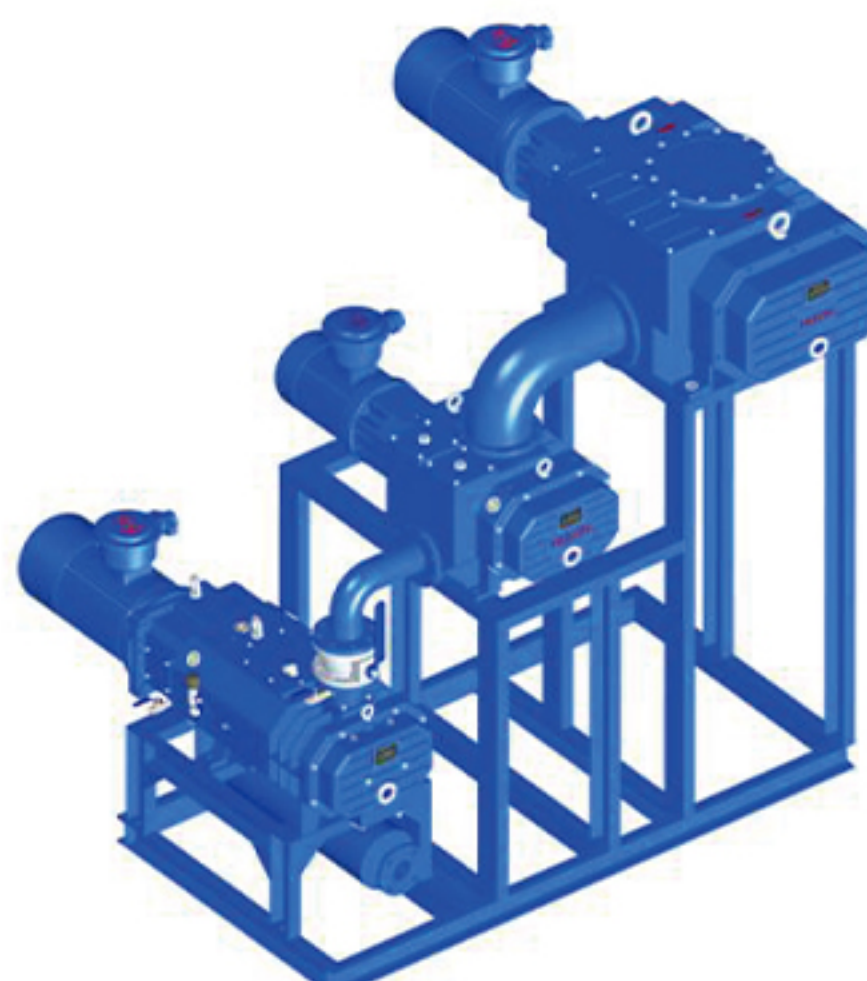
ZP-----主泵为 ZJP 型罗茨真空泵

LB-----前级泵为 LGB 型变螺距系列螺杆真空泵

2500---主泵抽速 2500L/s

4-----主泵与中间泵抽速之比

4-----中间泵与前级泵抽速之比



根据抽速及真空度的不同要求，有以下方案可供选择：

单罗茨螺杆真空机组性能参数表：

型号	泵型号		极限压力 (Pa)	抽气速率 (L/s)	进气口径 (mm)	排气口径 (mm)	配用功率 (kW)	
	主泵	前级泵						
JZJ(P)LG150-3	ZJ(P)150	LG50	$5 \times 10^{-1}$	150	100	40	2.2	5.5
JZJ(P)LG150-2	ZJ(P)150	LG70		150	100	40	2.2	7.5
JZJ(P)LB150-2	ZJ(P)150	LGB80		150	100	40	2.2	5.5
JZJ(P)LG300-5	ZJ(P)300	LG50		300	150	40	4	5.5
JZJ(P)LG300-4	ZJ(P)300	LG70		300	150	40	4	7.5
JZJ(P)LB300-4	ZJ(P)300	LGB80		300	150	40	4	5.5
JZJ(P)LB300-3	ZJ(P)300	LGB110		300	150	40	4	7.5
JZJ(P)LB600-6	ZJ(P)600	LGB110		600	200	40	7.5	7.5
JZJ(P)LG600-4	ZJ(P)600	LG150		600	200	65	7.5	15
JZJ(P)LB600-4	ZJ(P)600	LGB150		600	200	65	7.5	11
JZJ(P)LG600-3	ZJ(P)600	LG200		600	200	65	7.5	22
JZJ(P)LB600-3	ZJ(P)600	LGB220		600	200	65	7.5	15
JZJ(P)LG1200-8	ZJ(P)1200	LG150		1200	250	65	11	15
JZJ(P)LB1200-8	ZJ(P)1200	LGB150		1200	250	65	11	11
JZJ(P)LG1200-6	ZJ(P)1200	LG200		1200	250	65	11	22
JZJ(P)LB1200-6	ZJ(P)1200	LGB220		1200	250	65	11	15
JZJ(P)LB1200-4	ZJ(P)1200	LGB300		1200	250	65	11	22

双罗茨螺杆真空机组性能参数表：

型号	泵型号			极限压力 (Pa)	抽气速率 (L/S)	进气口径 (mm)	排气口径 (mm)	配用功率 (kW)
	主泵	中间泵	前级泵					
JZJ(P)LG150-21	ZJ(P)150	ZJ(P)70	LG50	$1 \times 10^{-1}$	150	100	40	8.8
JZJ(P)LG300-22	ZJ(P)300	ZJ(P)150	LG70		300	150	40	13.7
JZJ(P)LB300-22	ZJ(P)300	ZJ(P)150	LGB80		300	150	40	11.7
JZJ(P)LG600-42	ZJ(P)600	ZJ(P)150	LG70		600	200	40	17.2
JZJ(P)LB600-23	ZJ(P)600	ZJ(P)300	LGB110		600	200	40	19
JZJ(P)LG1200-44	ZJ(P)1200	ZJ(P)300	LG70		1200	250	40	22.5
JZJ(P)LB1200-43	ZJ(P)1200	ZJ(P)300	LGB110		1200	250	40	28.2
JZJ(P)LG1200-42	ZJ(P)1200	ZJ(P)300	LG150		1200	250	65	28.2
JZJ(P)LG1200-23	ZJ(P)1200	ZJ(P)600	LG200		1200	250	65	30
JZJ(P)LB1200-23	ZJ(P)1200	ZJ(P)600	LGB220		1200	250	65	33.5
JZJ(P)LG2500-44	ZJ(P)2500	ZJ(P)600	LG150		2500	320	65	44.5
JZJ(P)LB2500-44	ZJ(P)2500	ZJ(P)600	LGB150		2500	320	65	40.5
JZJ(P)LG2500-43	ZJ(P)2500	ZJ(P)600	LG200		2500	320	65	51.5
JZJ(P)LB2500-43	ZJ(P)2500	ZJ(P)600	LGB220		2500	320	65	44.5
JZJ(P)LB2500-42	ZJ(P)2500	ZJ(P)600	LGB300		2500	320	65	51.5

## 材料及构造

泵体外壳：灰铸铁 HT250

螺旋转子：球墨铸铁 QT500-7

唇形密封：唇封—聚四氟乙烯及石墨混合物

气封轴套：合金材料

同步齿轮：合金钢

镀层标准：耐蚀耐热哈氏合金

润滑：脂润滑和油润滑

轴承：双列角接触球轴承+圆柱滚子轴承

## 标准配件

机架

排气消声器

吸气口过滤网

冷却水监流器

真空表

## 可选配件

吸气口过滤器

排气冷凝器

吸入式气液分离器

流量开关及温度开关

氮气保护装置

## 能够成功地处理

醋酸酯

乙醇

苯

甘油酯

硫化物

无机酸

甲苯

有机酸

硝酸

氨

氯化物

二元醇

酮类

磷酸

硫酸

酚类

烃类

碳酰氯

**为了更好地为用户服务，选择合适产品，选型时请提供以下有关资料。**

- 被抽介质名称及成份；
- 被抽介质温度、浓度；
- 是否易燃、易爆或有毒气体；
- 被抽系统工作真空度及抽气量要求；
- 泵排出气体、液体是否要求回用；
- 真空系统排出口压力及是否作输送泵用；
- 气体过流部分及电机有无特殊要求及其他特殊要求。

## ● SY/2SY 系列水环压缩机

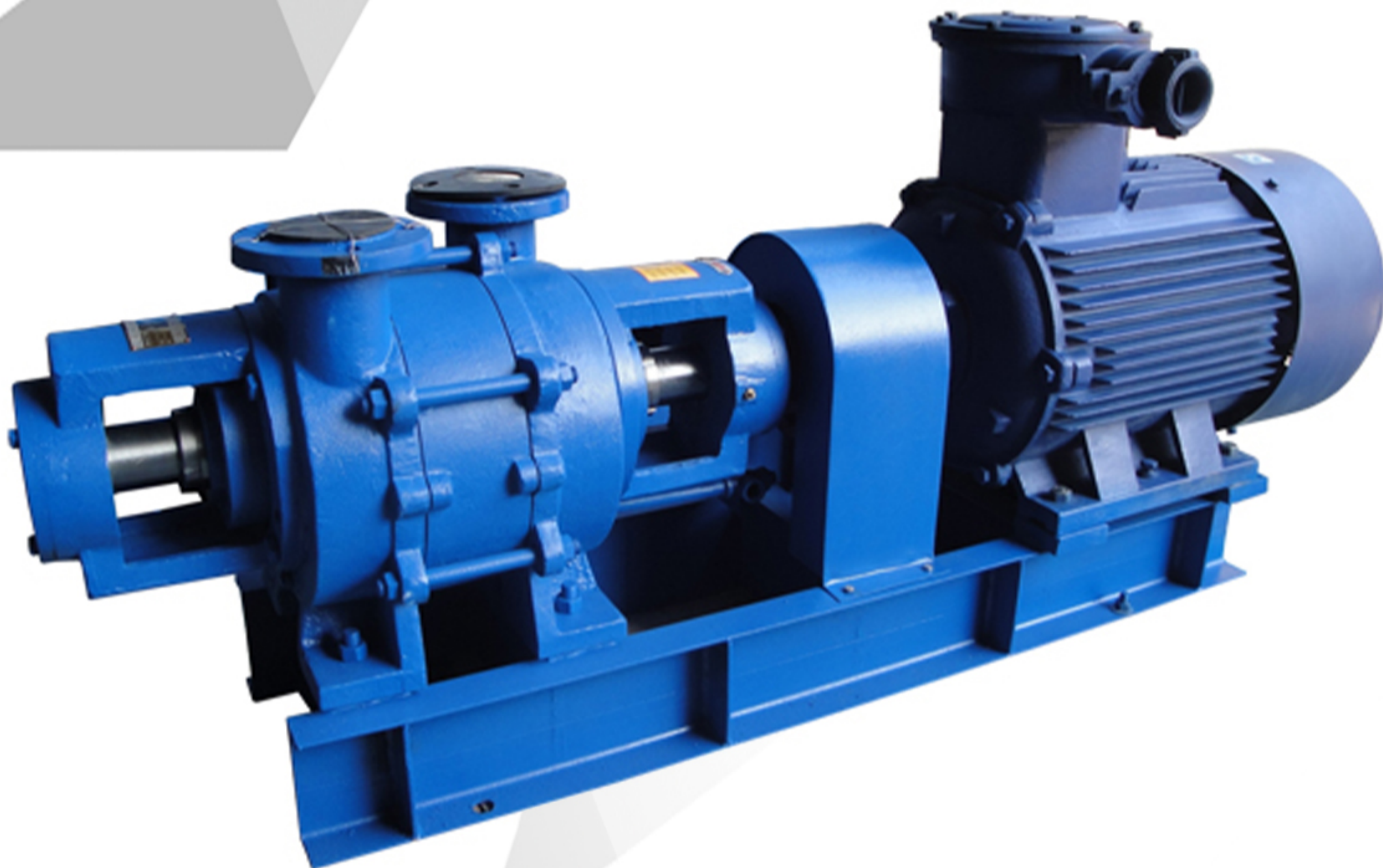
SY/2SY Series Liquid Ring Compressors

● SY/2SY 系列水环压缩机具有排气压力高，结构紧凑，运转平稳，等温压缩等特点。特别适于抽除含有水蒸气、灰尘、易燃易爆和在高温下易产生化学反应的气体。高压端的柔性排气阀结构，保证排气压力在设计范围内（单级 0.1-0.3MPa，双极 0.3-0.6MPa），采用外冲洗双端面机械密封，保证被压缩介质的完全无泄漏。

该系列水环压缩机广泛应用于化工、石油化工、制药和城市煤气等行业的易燃、易爆气体的压缩输送和尾气回收等工艺流程。

SY/2SY series water ring compressor has the characteristics of high discharge pressure, compact structure, stable operation and isothermal compression. It is especially suitable for extracting gas containing water vapor, dust, flammable and explosive and easy to produce chemical reaction at high temperature. The flexible exhaust valve structure at the high pressure side ensures that the exhaust pressure is within the design range (single-stage 0.1-0.3MPa, bipolar 0.3-0.6MPa), and the external flushing double-end mechanical seal is used to ensure that the compressed medium is completely leak-free.

This series of water ring compressors are widely used in the process of compressing and conveying flammable and explosive gases and recovering tail gas in chemical, petrochemical, pharmaceutical and city gas industries.



## SY/2SY 系列技术规格表

### SY/2SY Series Technical Parameters

#### 型号表示方法

2SY系列泵的型号以4个位的文字(字母)和数字组合表示, 标记如下:

<1> S Y□--□<2> 其中:

<1>代表级数, 具体如“2”代表两级, 不加则代表单级SY代表高压型水环压缩机系列名称

<2>代表泵最大抽速, 单位 $m^3/min$

型号示例: “2SY-12”为最大气量为 $12m^3/min$ 的双级水环压缩机.

#### Pump Model Code

SY/2SY series pump model is expressed in the combination of 4 letters and digits as follows:

<1>SY-<2>

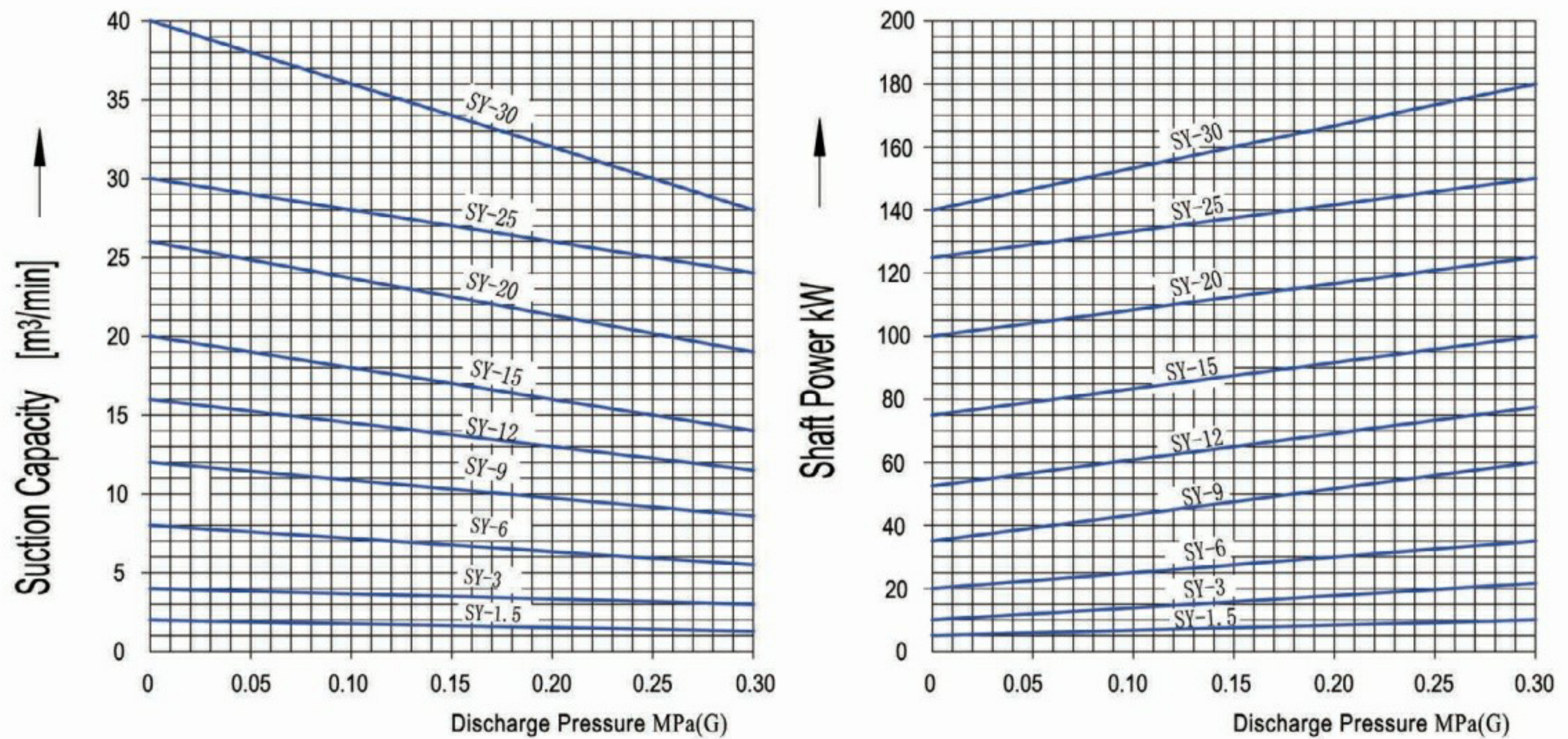
<1> indicates the number of stages: SY indicates single stage high pressure water ring compressor.

<2> indicates max.capacity of pump, unit is  $m^3/min$ . For example, 2SY-12 is a double stage water ring com-pressor with max.capacity  $12m^3/min$ .

型号 Model	排气量 Discharge Capacity	工作压力范围 Working pressure range	电机功率 Motor Power	转速 Speed	吸排气口径 In/Out Port Diameter	供水量 Water Supply
	$m^3/min$	MpaG	KW	r/min	mm	L/min
SY-1.5	1.5	0.15-0.3	2-18.5	2940	65	30-50
SY-3	3		2-22	2940	65	50-80
SY-6	6		2-37	2970	65	80-120
SY-9	9		4-75	1480	125	120-150
SY-12	12		4-90	1480	125	156-200
SY-15	15		4-110	1480	150	180-220
SY-20	20		6-132	980	150	200-250
SY-25	25		6-160	980	200	250-300
SY-30	30		6-185	980	200	300-350
2SY-1.5	1.5		0.3-0.6	2-22	2940	65
2SY-3	3	2-37		2940	65	80-120
2SY-6	6	2-75		2970	65	120-150
2SY-9	9	4-110		1450	125	150-170
2SY-12	12	4-132		1450	125	170-200
2SY-15	15	4-185		1450	150	200
2SY-20	20	6-250		980	150	250
2SY-25	25	6-315		980	200	300
2SY-30	30	6-355		980	250	350
2SY-35	35	6-400		980	250	400

## SY 单级水环压缩机性能曲线

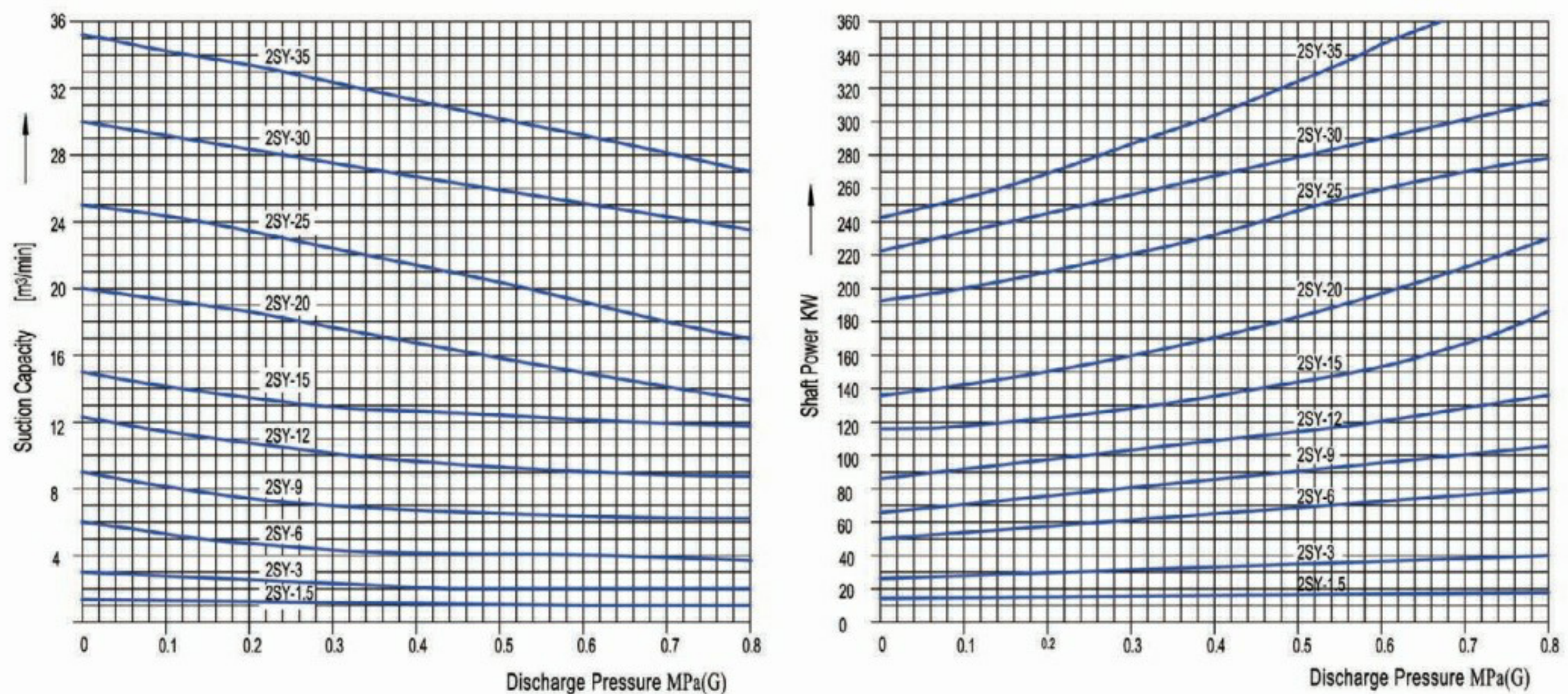
SY Single-stage Water Ring Compressor Performance Curve



- 注：1.SY/2SY曲线图是以空气为实验气体，在下列条件下列出：吸入气体压力为0.1013MPa;供水温度为15-20°C吸入气体温度为20°C;吸入气体相对湿度为70%  
 2.供水量随着排气压力的升高而增加 3.性能允差为±10%

## 2SY 双级水环压缩机性能曲线

2SY Double-stage Water Ring Compressor Performance Curve



- NOTE:1.The curve is taken air as suction gas and is obtained under the following condition:suction pressure 0.1013 MPa; water temperature 15-20°C; suction temperature 20°C relative humidity 70%  
 2.Water supply should be increased with discharge pressure rises.  
 3.Performance tolerance ±10%.

## WL/WLW 系列立式（无油）往复真空泵

### WL/WLW Series Vertical Reciprocating Vacuum Pumps (Oil-free)

新型 WL/WLW 系列立式往复真空泵，是原 W 型卧式往复真空泵的更新换代产品，与 W 型泵相比，具有以下特点：

- （1）由于气阀布置在汽缸盖和汽缸颈上（W 是布置在汽缸上），因而增加了汽缸冷却水的面积，减少了功率消耗，节能 10~15%，占地面积减小 1/2；
- （2）改善了卧式泵活塞自重下垂磨损不均匀的特点，使活塞、连杆等运动部件磨损减小；
- （3）WL 系列立式往复真空泵为有油型，WLW 系列立式往复泵为无油型。



The new type WL/WLW series vertical reciprocating vacuum pump are the renewed products based on the primary W lying reciprocating vacuum pump. Compared with the W type pump, they have the following features:

1) As the gas valves are installed on the cover and neck of the cylinder (the W series are on the body of the cylinders), thus increase the area of the cooling water in the cylinder, decrease the loss of power and save energy by 10-15%. The area it occupies can decrease by 1/2.

2) The piston of the lying reciprocating vacuum pump will go down because of the weight of itself, so it will be worn away unevenly. The WL series improved this shortcoming. It can decrease the wearing of the moving units as piston and connecting poles.

3) WL series vertical reciprocating vacuum pumps is oil type, while WLW series is oil-free.

## WL/WLW 系列往复真空泵技术性能表

### WL/WLW Technical Parameters

型号 Model	WL-100 WLW-100	WL-200 WLW-200	WL-300 WLW-300	WL-600 WLW-600
抽气速率 (L/S) Suction rate	100	200	300	600
极限压力 (Pa) Ultimate pressure	2600	2600	2600	2600
转速 (rpm) Speed	350	310	350	320
电机功率 (KW) motor power	7.5	22	30	55
电机型号 motor model	Y160M-6	Y200L2-6	Y225M-6	Y280S-6
吸排气口径 (mm) inlet/outlet size	100	125	150	200
整机重量 (kg) Whole weight	820	1400	2000	2800

## ZJP 系列罗茨真空泵

### ZJP Series Booster Pumps

罗茨真空泵的做大优点是在较低的入口压力时具有较高的抽气速率，但他不能单独使用，必须有一台前级真空泵串联，带被抽系统中的压力被前级真空泵抽到罗茨真空泵允许入口压力时，罗茨真空泵才能开始工作，并且在一般情况下，罗茨真空泵不允许高压差工作，否则将会过载和过热而损坏，因此使用罗茨真空泵必须合理地选用前级真空泵，安装必要的保护设备。

其前级泵可用滑阀泵或旋片泵，水环泵、油环泵等真空泵。特别在抽除有大量水蒸气的气体时，选用水环真空泵作为前级泵是很理想的。采用精密齿轮，故运转噪声极低；内部设置溢流阀，从而允许罗茨真空泵和前级真空泵几乎可以同时在大气条件下启动，以缩短抽气时间；采用国际标准进出口法兰精密动平衡，故振动极低；在中真空范围内具有高抽速，从而降低运转成本。由于严格控制转子和转子与泵体间的间隙，泵腔内部运动部件无摩擦存在，所有法兰部件均采用“O”型密封圈取代有机硅橡胶平面密封，从而维护更方便；精选的轴承加以良好的润滑，可极大的延长泵的使用寿命，泵腔无润滑油，从而保证泵腔干燥。



The greatest advantage of booster pump is high exhaust speed under low inlet pressure. However, the pump must be connected with a backing vacuum pump since the booster pump cannot work until the backing pump vanuumizes the pumped system to the allowed inlet pressure of the roots vacuum pump. Moreover, the roots vacuum pump cannot tolerate large pressure difference; otherwise, the pump will be damaged by overload and overheat, so a suitable backing pump and safety devices are indispensable for the booster vacuum pump.

The backing pump can be vacuum pump like slide valve pump, rotary vane pump, water ring pump or oil ring pump. The water ring pump is quite ideal for gas with a great deal of vapour. The precise gear is installed thus the operation noise is quite low. The internal ZJP overflow valves allow the booster pump and backing pump to start synchronously under atmosphere condition, shortening exhaust time. The vibration is extremely low because of perfect dynamic balance generated by discharge flange and suction flange which meet the international standards. High exhaust speed can be obtained in medium vacuum, thus running cost is lowered. The gap between rotators and between the pump body and rotators is strictly controlled to avoid frictions between moving parts in the pump cavity. All the flange parts are sealed by O-rings instead of flat organic silicon rubber, marking maintenance more convenient. Service life of the pump is greatly prolonged by well-chosen bearings and satisfactory lubrication. No lubricant exists in the pump cavity to ensure the dryness.

型号 model	ZJP-30	ZJP-70	ZJP-150	ZJP-300	ZJP-600	ZJP-1200	ZJP-2500
抽速 capacity(L/s)	35	70	150	300	600	1200	2500
极限压力 limit pressure(Pa)	0.05	0.05	0.05	0.05	0.05	0.05	0.05
转速 speed(r/min)	1420	2840	2880	2900	2900	2940	2940
口径 aperature (mm)	进口 inlet	80	80	100	150	200	250
	出口 outlet	50	50	80	100	150	200
重量 weight (kg)	75	100	200	490	500	1200	1300
罗茨水环机组配用电动机功率 motor power(kW)	Y90-4-1.5	Y90-2-1.5	Y100-2-3	Y112-2-4	Y132-2-7.5	Y160-2-11	Y180-2-22
噪音 noise <dB	78	78	81	82	84	85	87
最大零流量压缩比 max compression ratio at zero flow	26	26	30	30	35	40	40
最大允许压差 max allowable pressure difference Pa	8000	6000	6000	5000	4000	3000	3000

## ● JZJ2B 系列罗茨——水环机组

JZJ2B Series Booster---Water Ring Vacuum Systems

● JZJ2B 系列罗茨--水环机组是由 ZJ 型罗茨真空泵作为主抽泵，2BE/2BV/2SK 系列水环泵作为前级泵组成的抽气机组。它不仅可以用来抽除一般气体，还可以抽吸含有少量灰尘的气体。它与一般式机械真空泵和一般水环式真空泵相比，具有不怕油污染，不怕水汽及微尘，极限真空度高及在较高真空度工况下抽速大的优点，是轻纺、食品、化工等行业领域的干燥、脱水及真空除的一种理想的真空抽气设备。



JZJ2B series Roots--Water ring unit is an air pumping unit composed of ZJ Roots vacuum pump as the main pump and 2BE/2BV/2SK series water ring pump as the backing pump. It can not only be used to extract general gases, but also gases containing a small amount of dust. Compared with general mechanical vacuum pumps and general water ring vacuum pumps, it has the advantages of not being afraid of oil pollution, water vapor and fine dust, high ultimate vacuum and high pumping speed under higher vacuum conditions. It is an ideal vacuum pumping equipment for drying, dehydration and vacuum removal in the fields of chemical industry and other industries.

## 型号表示方法 Model Presentation

如：

J代表机组的第一个字母

J: stand for pump unit

ZJ代表主泵为ZJ系列罗茨真空泵

ZJ: ZJ series booster pump as main pump

2B代表前级泵为2BV/2BE系列水(液)环真空泵

2B: backing pump series 2BV/2BE water (liquid) ring vacuum pump

150为主泵(罗茨泵)抽速L/s

150: suction speed of main pump(booster pump) L/s

2.1为抽速配比代号

(即主泵与二级泵抽速比为2, 二级泵与前级泵抽速比为1)

2.1: indicate suction speed ratio

(main pump and second stage pump suction speed ratio is 2, second stage pump and backing pump speed ratio is 1).

J Z J 2 B 1 5 0 - 2.1

## JZJ2B系列罗茨水(液)环真空机组技术指标：

机组型号 Unit type	泵型号 Pump model		抽速 Speed l/s	最高吸入压力 Max suction pressure pa	极限压力 Ultimate pressure pa (绝压)		总功率 Total power kw
	主泵 Main pump	前级泵 Backing Pump			水环机组 Water ring unit	油环机组 Oil ring unit	
JZJ2B30-2	ZJ30	2BV2-061	30	8000	300	80	3
JZJ2B30-1	ZJ30	2BV5-110	30	12000			5.5
JZJ2B70-2	ZJ70	2BV5-110	70	6000			5.5
JZJ2B70-1	ZJ70	2BV5-111	70	12000			7
JZJ2B150-2A	ZJ150	2BV5-111	150	6000			8.5
JZJ2B150-2B	ZJ150	2BV5-121	150	8000			10.5
JZJ2B150-1	ZJ150	2BV5-131	150	10000			14
JZJ2B300-2A	ZJ300	2BV5-131	300	4000			15
JZJ2B300-2B	ZJ300	2BV5-161	300	5000			19
JZJ2B300-1	ZJ300	2BE1-202	300	10000			26
JZJ2B600-2A	ZJ600	2BE1-202	600	4000			29.5
JZJ2B600-2B	ZJ600	2BE1-203	600	5000			44.5
JZJ2B600-1	ZJ600	2BE1-252	600	12000			52.5
JZJ2B1200-2A	ZJ1200	2BE1-252	1200	2500			56
JZJ2B1200-2B	ZJ1200	2BE1-253	1200	4000			86
JZJ2B1200-1	ZJ1200	2BE1-303	1200	8000			121
JZJ2B2500-2	ZJ2500	2BE1-303	2500	3000	132		

## JZJ2B Series Booster---Water Ring Pump System Technical Parameters

机组型号 Unit type	泵型号 Pump model		抽速 Speed l/s	最高吸入压力 Max suction pressure pa	极限压力 Ultimate pressure pa (绝压)		总功率 Totalpower kw
	主泵 Main pump	前级泵 Backing Pump			水环机组 Water ring unit	油环机组 Oil ring unit	
JZJ2B70-2.1	ZJ70	ZJ30/2BV5-110	70	6000	100	1	7
JZJ2B150-2.1	ZJ150	ZJ70/2BV5-111	150	6000			10
JZJ2B150-4.1	ZJ150	ZJ30/2BV5-110	150	3000			10
JZJ2B300-2.1	ZJ300	ZJ150/2BV5-131	300	5000			18
JZJ2B300-2.2	ZJ300	ZJ150/2BV5-121	300	4000			14.5
JZJ2B300-4.1	ZJ300	ZJ70/2BV5-111	300	2000			11
JZJ2B600-4.1	ZJ600	ZJ150/2BV5-131	600	1500			21.5
JZJ2B600-2.2	ZJ600	ZJ300/2BV5-161	600	2000			26.5
JZJ2B1200-4.2	ZJ1200	ZJ300/2BV5-161	1200	1000			30
JZJ2B1200-4.1	ZJ1200	ZJ300/2BE1-202	1200	1200			37
JZJ2B1200-2.2	ZJ1200	ZJ600/2BE1-203	1200	2500			53.5
JZJ2B1200-2.1	ZJ1200	ZJ600/2BE1-252	1200	3000			61.5
JZJ2B2500-4.1	ZJ2500	ZJ600/2BE1-252	2500	1000			72.5
JZJ2B70-2.1.1	ZJ70	ZJ30/ ZJ30/2BV5-110	70	6000			0.5
JZJ2B150-2.2.1	ZJ150	ZJ70/ ZJ30/2BV5-110	150	3000	10		
JZJ2B300-2.2.1	ZJ300	ZJ150/ ZJ70/2BV5-111	300	3000	14		
JZJ2B300-4.2.1	ZJ300	ZJ70/ ZJ30/2BV5-110	300	1200	11		
JZJ2B600-2.2.1	ZJ600	ZJ300/ ZJ150/2BV5-131	600	2500	25.5		
JZJ2B600-4.2.1	ZJ600	ZJ150/ ZJ70/2BV5-111	600	1200	17.5		
JZJ2B1200-4.2.1	ZJ1200	ZJ300/ ZJ150/2BV5-131	1200	1000	29		
JZJ2B2500-4.2.1	ZJ2500	ZJ600/ ZJ300/2BE1-202	2500	1000	55.5		

注：1. 以上表格为推荐标准系列，因在实际生产应用中工作条件的不同，吸入气体及压力会发生很多变化，所以在选型时应根据实际抽气过程、气体释放过程、可凝性气体冷凝情况、吸入压力的时间变化等等进行校核计算或参照现有设备使用情况选型。单泵的技术指标详见各泵参数表。

2. 最高吸入压力是指主泵能够启动的最高压力，如在高于该压力下长时间运行，会造成主泵过载。

3. 如真空泵电机、电接点真空表、电控柜需防爆，请在订货时注明，上表中的2BV2、2BV5系列相应改为2BV6系列。

Note:1.The form above shows suggested standard pump model, because of working condition difference in site application, the suction gas and pressure may be different, so in the process of model selection, the suction process, gas discharge, gas condensate and time changes of suction pressure etc. should be considered for calculation and adaptable for current equipment. Parameters of single pump is included in the parameter form.

2.Max. suction pressure means the max. pressure for main pump to start up. Long term operation in higher pressure will lead to overload of main pump.

3.If the motor, electric contact vacuum meter, electric control cabinet are required to be antiexplosion, please remark when place an order, and 2BV2, 2BV5 series will be upgraded to 2BV6 modle.

## SK/2SK 系列液环真空泵 及压缩机

### SK/2SK Series Liquid Ring Vacuum Pumps and Compressors

SK/2SK系列产品被广泛用于机械、石油、工业食品和电力领域。其中SK系列适宜的工作区间是：0~0.085Mpa，做压缩机用时排气压力为0~0.2Mpa。2SK系列真空泵在较高真空下有较大的抽气量，最适宜在吸气压力为-0.085Mpa~0.095Mpa范围内工作。



SK/2SK series are widely used in industries of mechanical, petrochemical, food, and electronics. The suitable working pressure of SK series is 0~0.085Mpa, while its discharge pressure is 0~0.2Mpa if used as compressors. 2SK pumps have larger capacity in high vacuum, most suitable in suction pressure -0.085Mpa~0.095Mpa.

### SK/2SK 技术性能表 SK/2SK Technical Parameters

型号 Model	抽气量 Suction capacity	极限真空度 Ultimate vacuum	电机功率 Power kW		转速 rpm	压缩机 排气压力 Pressure	供水量 Water supply	吸/排气口 Suction/ Discharge port	进水口 Water inlet
	m <sup>3</sup> /min	MPa (G)	真空泵 Vacuum pump	压缩机 compressor	R /min	MPa	L/min	DN(mm)	(mm)
SK1.5	1.35	-0.089	3	4	1440	0-0.1	10-15	65	G1/2"
SK-3	2.7	-0.093	5.5	7.5	1440	0-0.1	15-20	65	G1/2"
SK-6	5.4	-0.093	11	15	1440	0-0.1	20-30	65	G1/2"
SK-9	8.1	-0.093	15	22	1440	0-0.1	30-40	65	G1/2"
SK-12	10.8	-0.093	18.5	30	970	0-0.1	40-50	80	G1/2"
SK-20	18	-0.093	37	55	740	0-0.1	60-80	150	G3/4"
SK-30	27	-0.093	45/55	75	740	0-0.1	70-100	150	G3/4"
SK-42	37.8	-0.093	75	-	740	-	95-130	150	G3/4"
型号 Model	抽气量 Suction capacity	极限真空度 Ultimate vacuum	电机功率 Power		转速 rpm	供水量 Water supply	吸/排气口 Suction/ Discharge port	进水口 Water inlet	
	m <sup>3</sup> /min	MPa	kW		r/min	L/min	DN(mm)	(mm)	
2SK1.5	1.35	-0.097	4		1440	10-15	40	G1/2"	
2SK-3	2.7	-0.098	7.5/11		1440	15-20	40	G1/2"	
2SK-6	5.4	-0.098	15		1460	25-35	65	G1/2"	
2SK12	10.8	-0.098	22/30		970	40-50	100	G1/2"	
2SK20	18	-0.098	45		740	60-80	125	G3/4"	
2SK30	27	-0.098	55/75		740	70-90	125	G3/4"	



注：1，SK/2SK 系列泵性能曲线在标准条件下得到。

2，SK系列的泵在排气压力较大时，建议加大电机功率。

3，2SK系列的泵只适合高真空状态，若长时间处于低真空或运行工作范围较宽时，建议加大电机功率。

Note:1.The SK/2SK series pump performance curve is obtained under the standard condition.

2.Motor with higher power is suggested if SK series pump has bigger discharge pressure.

3.2SK series pumps are suitable to deal with high vacuum only, but if it is long term low vacuum or has wide working range, the motor should have higher power.

## ● 真空 / 压缩机系统

Vacuum/Compressor Systems

● 作为标准泵 / 电机单机设备的补充公司  
提供全系列的水环泵成套机组，如 2BE  
系列，2BV 系列，2SY 系列，ZJZ 系列的  
所有成套机组。其中包括汽水分离器，换  
热器，连结管路等，有利于用户的安装，  
可大大缩短用户的安装周期。工作液可采  
用水或各种化工溶剂等进行循环使用，大  
大减少了化工行业对环境的污染。如果采  
用所抽除的介质作为工作液  
时，可回收所抽除的介质。闭式循环系统  
需根据用户的入口条件、冷却水的条件、  
排气口的条件进行设计。系统主要部件包  
括：真空泵 / 压缩机汽水分离器换热器共  
用底盘内部管线。

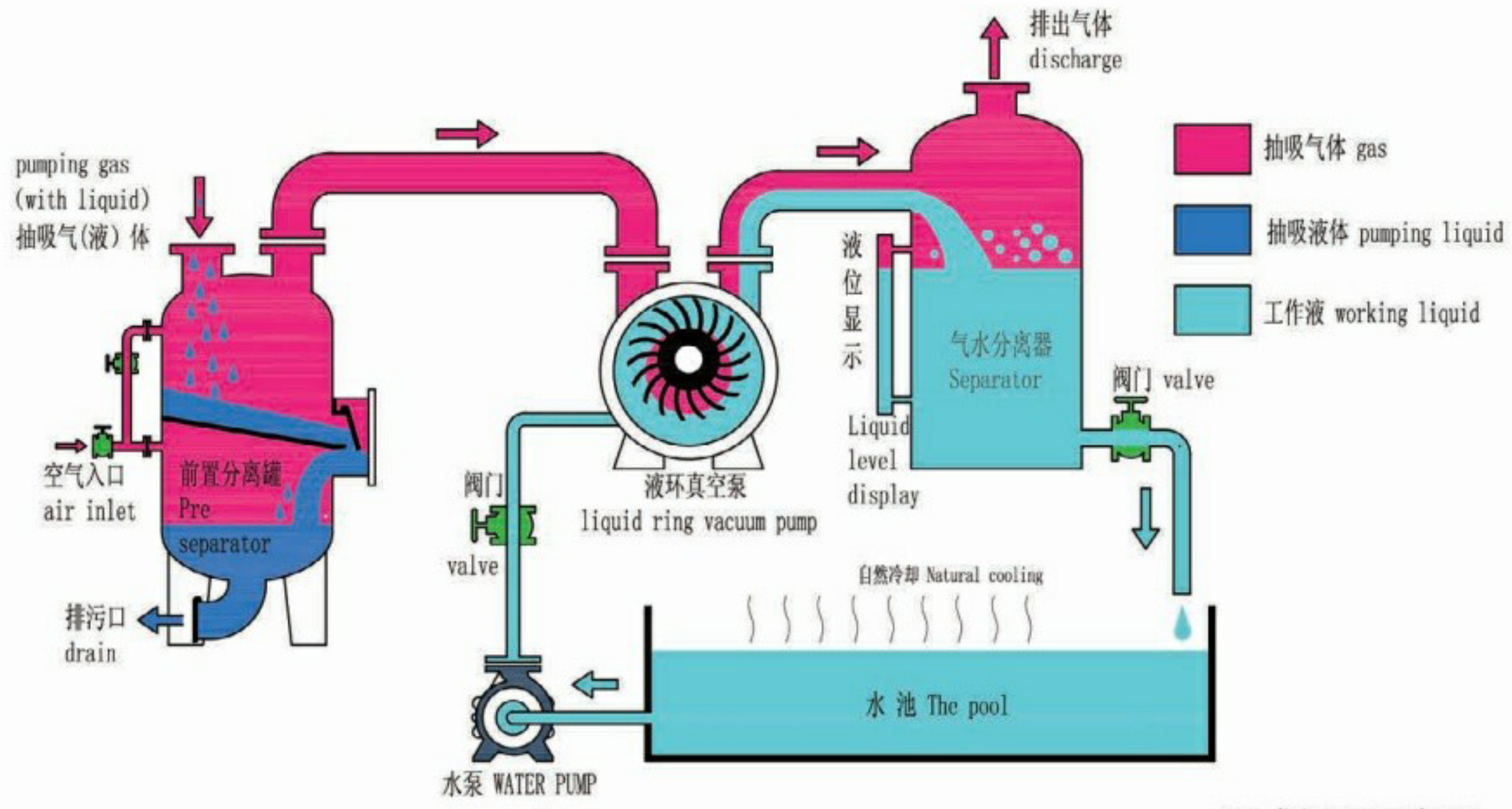
客户可根据需求对系统中的设备、附  
件、测控仪表、开关柜、电控装置等进行  
选择配置。因真空泵 / 压缩机的选型需根  
据详细的工况条件进行计算，如需我公司  
进行设计选型，请务必提供详细的工况。  
可填写附录：液环真空泵 / 液环压缩机 /  
液环机组参数表。



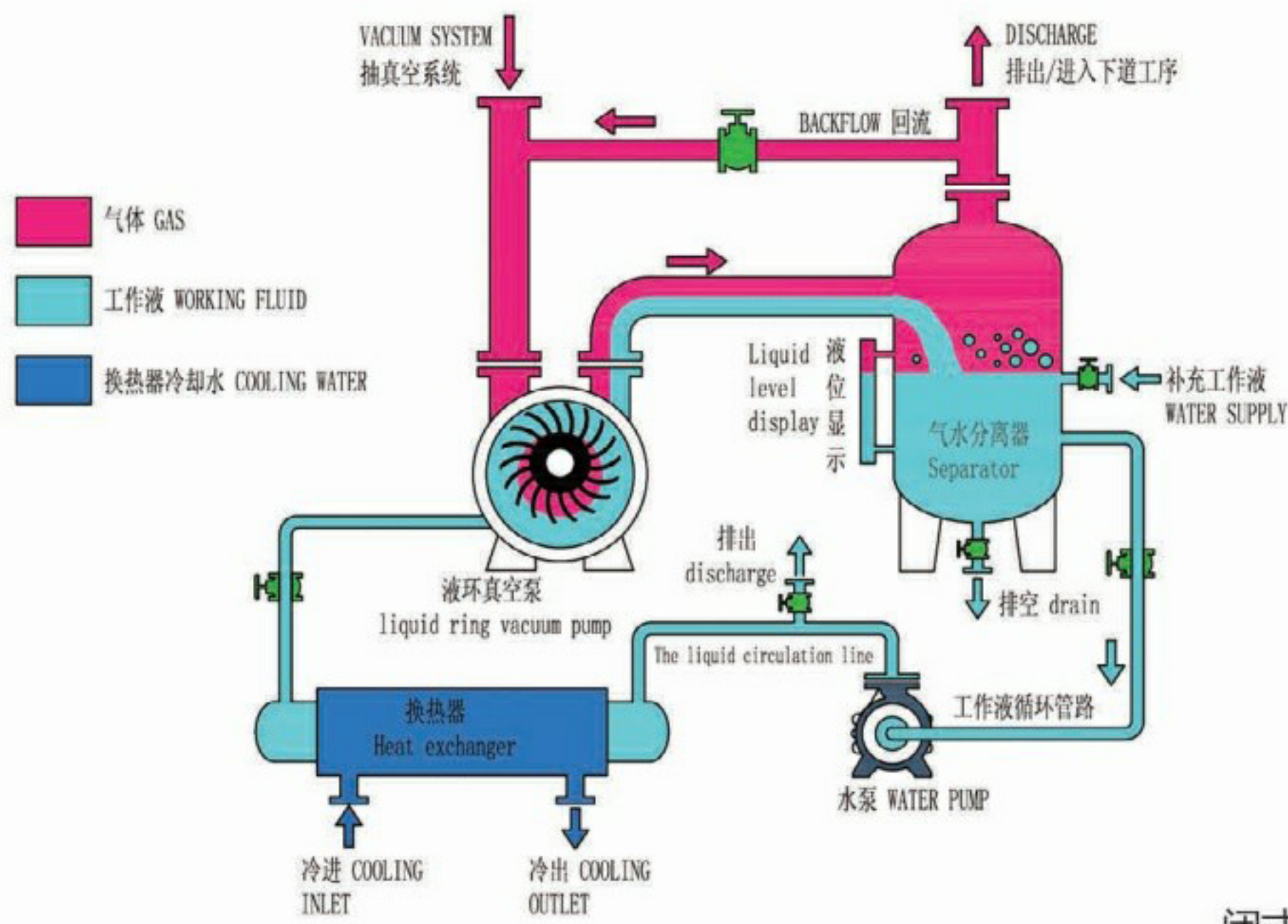
As a supplement to standard pump/motor stand-alone equipment, the company provides a full range of water ring pump complete sets, such as 2BE series, 2BV series, 2SY series, ZJZ series of all complete sets. These include steam-water separators, heat exchangers, connecting pipes, etc., which are beneficial to the user's installation and can greatly shorten the user's installation cycle. The working fluid can be recycled using water or various chemical solvents, which greatly reduces the environmental pollution caused by the chemical industry. If the extracted medium is used as the working fluid

At the time, the removed medium can be recycled. The closed circulation system needs to be designed according to the user's inlet conditions, cooling water conditions, and exhaust port conditions. The main components of the system include: vacuum pump/-compressor, steam-water separator, heat exchanger, and common chassis internal pipeline.

Customers can choose and configure the equipment, accessories, measurement and control instruments, switch cabinets, electronic control devices, etc. in the system according to their needs. Because the selection of vacuum pump/compressor needs to be calculated according to the detailed working conditions, if you need our company to design and select, please be sure to provide the detailed working conditions. You can fill in the appendix: liquid ring vacuum pump/liquid ring compressor/liquid ring unit parameter table.



开式循环示意图  
Open cycle diagram



闭式循环示意图  
Closed cycle diagram



真空引水/vacuum diversion

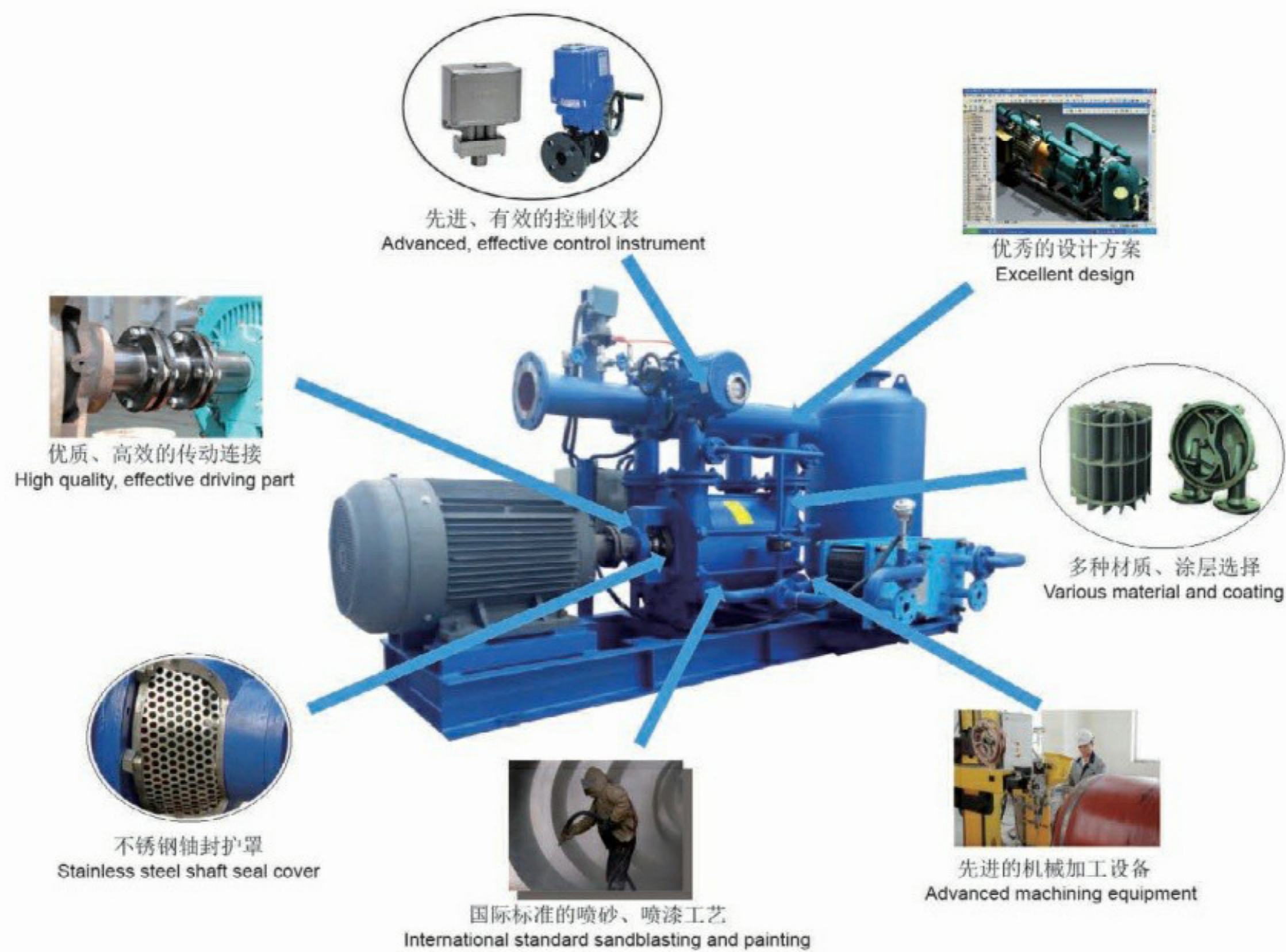


制糖行业/Sugar industry

## 工匠精神 The Craftsman Spirit

工匠对于产品和服务的研发和制造，会采取严格的标准：工匠不会把品质当做上天的恩赐，而是看做竞争的必要条件；工匠会竭尽全力制造出最优质的产品，即使其他获利导向的对手投机取巧，我们一样坚持理念。

Craftsmen are always strict to product upgrading and service, and we don't take quality as god's gift but an indispensable factor for competition; Craftsmen will try every possible ways to make the best product, and we will persist our philosophy regardless of competitors' speculation.



双环泵业人将继续坚持“工匠精神”，依靠信念、信仰，将设计产品不断改进、不断完善，最终，通过高标准要求历练之后，成为众多用户的骄傲。

Chinco men will stick to carry out the craftsmen spirit, and insist our belief to improve and perfect the products, aiming to be the proud among customers throughout high standard practices.



## 机组用分离器、换热器型号配置表

### Separators and Heat Exchangers for Pump Units

泵型号 Pump model	换热器 Heat exchanger		分离器 Separator	泵型号 Pump model	换热器 Heat exchanger		分离器 Separator
	板式 Plate	列管 Tube			板式 Plate	列管 Tube	
2BV-060/061	1m <sup>2</sup>	1.5m <sup>2</sup>	φ350x650	SK-20	8m <sup>2</sup>	10m <sup>2</sup>	φ700x1400
2BV-070/071	2m <sup>2</sup>	2m <sup>2</sup>	φ350x650	SK-30	10m <sup>2</sup>	12m <sup>2</sup>	φ800x1600
2BV-110/111	2-3m <sup>2</sup>	3m <sup>2</sup>	φ400x800	2SK-6	4m <sup>2</sup>	5m <sup>2</sup>	φ500x900
2BV-121	3m <sup>2</sup>	3.5m <sup>2</sup>	φ450x800	2SK-9	5m <sup>2</sup>	7m <sup>2</sup>	φ600x1200
2BV-131	3-4m <sup>2</sup>	4m <sup>2</sup>	φ450x900	2SK-12	6m <sup>2</sup>	8m <sup>2</sup>	φ700x1400
2BV-161	4-5m <sup>2</sup>	4-5m <sup>2</sup>	φ500x900	2SK-20	8m <sup>2</sup>	10m <sup>2</sup>	φ800x1600
2BE-152/153	4-5m <sup>2</sup>	5m <sup>2</sup>	φ500x900	2SK-30	10m <sup>2</sup>	12m <sup>2</sup>	φ900x1800
2BE-202/203	5-7m <sup>2</sup>	7m <sup>2</sup>	φ650x1300	SY-1.5/3	5m <sup>2</sup>	8m <sup>2</sup>	φ800x1600
2BE-252/253	8-10m <sup>2</sup>	10m <sup>2</sup>	φ700x1400	SY-6	8m <sup>2</sup>	10m <sup>2</sup>	φ900x1800
2BE-303/305	15-18m <sup>2</sup>	18m <sup>2</sup>	φ800x1600	SY-9	12m <sup>2</sup>	15m <sup>2</sup>	φ1000x2000
2BE-353/355	18-20m <sup>2</sup>	25m <sup>2</sup>	φ900x1800	SY-12	15m <sup>2</sup>	18m <sup>2</sup>	φ1000x2000
2BE-403/405	25-28m <sup>2</sup>	30m <sup>2</sup>	φ1100x2200	SY-15	18m <sup>2</sup>	20m <sup>2</sup>	φ1200x2400
2BE-40/42	25-28m <sup>2</sup>	30m <sup>2</sup>	φ1100x2200	SY-20	20m <sup>2</sup>	25m <sup>2</sup>	φ1200x2400
2BE-50/52	30-35m <sup>2</sup>	38m <sup>2</sup>	φ1200x2400	SY-30	25m <sup>2</sup>	30m <sup>2</sup>	φ1300x2600
2BE-60/62	35-40m <sup>2</sup>	40m <sup>2</sup>	φ1300x2600	2SY-1.5/3	6m <sup>2</sup>	8m <sup>2</sup>	φ600x1500
2BE-67	40-45m <sup>2</sup>	45m <sup>2</sup>	φ1400x2800	2SY-6	8m <sup>2</sup>	10m <sup>2</sup>	φ900x1800
2BE-72	45-50m <sup>2</sup>	50m <sup>2</sup>	φ1500x3000	2SY-9	15m <sup>2</sup>	18m <sup>2</sup>	φ1000x2000
SK-1.5/3	3m <sup>2</sup>	4m <sup>2</sup>	φ450x800	2SY-12	18m <sup>2</sup>	22m <sup>2</sup>	φ1000x2000
SK-6	4m <sup>2</sup>	5m <sup>2</sup>	φ500x900	2SY-15	20m <sup>2</sup>	25m <sup>2</sup>	φ1100x2200
SK-9	5m <sup>2</sup>	7m <sup>2</sup>	φ600x1200	2SY-20	25m <sup>2</sup>	28m <sup>2</sup>	φ1200x2400
SK-12	6m <sup>2</sup>	8m <sup>2</sup>	φ600x1200	2SY-30	30m <sup>2</sup>	35m <sup>2</sup>	φ1300x2600

1.表内数据是在进气温度30°C、冷却水温度25°C下的数值，应根据实际工况调整。

2.实际应用机组包括但不限于上述配置，详情请电话咨询。本表解释权归我公司所有。

1. The value included in this table is obtained in state of 30°C, and cool water temp. 25°C, and they may be different according to different working condition.

2. The actual pump units include the facility above but not limited to them, please contact us for details. We reserve the right to explain.



## 应用行业介绍

### Industries and Application

#### 客户受益点

液环设计原理使设备能够处理饱和蒸汽、腐蚀性气体或被污染的蒸汽；  
设备运行期间零部件之间无接触，这样能够减小磨损并能够减少产生的热量、振动、噪音以及相应的维修；

当处理危险、易爆、或热敏气体时，连续供应的冷却工作液可以带走压缩过程中产生的热，保持系统平衡，压缩过程更安全；

等温压缩使压缩机可以低温运转，有效延长使用寿命。

#### Customer benefits:

Based on liquid ring principle theory, vacuum pumps are capable to handle saturated steam, corrosive gas, or contaminated steam.

No contact between components, this reduces friction and reduce heat, vibration, noise and maintenance. When handling hazardous, explosive, or heat sensitive gas, the continuous supply of cooling liquid will take away the heat in compression, and keep a thermally stable condition for safety. Isothermal compression makes it possible for compressor operation in low temperature, and has longer service life.

#### 行业与应用

- |         |           |           |
|---------|-----------|-----------|
| ● 化工流程  | ● 纸浆&造纸   | ● 尾气回收    |
| ● 氯碱    | ● 精炼业     | ● 聚乙烯回收   |
| ● 饮用水   | ● 氢气&光气压缩 | ● 臭氧&氧气压缩 |
| ● 气体制造  | ● 氯气压缩    | ● 火炬气回收   |
| ● 聚合物生产 | ● 二氧化碳压缩  |           |

#### Industries and Applications

- |                              |                                   |                        |
|------------------------------|-----------------------------------|------------------------|
| ● Chemical                   | ● Pulp & Paper                    | ● Vent Gas Compression |
| ● Chlor-Alkali               | ● Refineries                      | ● VCM Recovery         |
| ● Drinking Water             | ● Hydrogen & Phosgene Compression |                        |
| ● Ozone & Oxygen Compression |                                   |                        |
| ● Gas Product                | ● Chlorine Gas Compression        | ● Flare Gas Recovery   |
| ● Polymers                   | ● Carbon dioxide Compression      |                        |



市政环保

Municipal environment protection



钛材氯气输送

Titanium whole set for chlorine transporting



凝汽器抽真空 / Condenser Vacuum System



造纸工程 Paper making



氯碱化工 Chlorine

## 业绩应用 Typical Application



石油化工 petrochemical



浓缩干燥 concentration and drying

双环咨询服务将提供改进工艺流程和复杂工况下的真空设备选型，提升可靠的技术参数。我们的顾问拥有对广泛行业，复杂工程和维护操作的深入了解及现场实践技能。

不仅仅是卓越的产品.....双环泵业还通过技术方案和综合售后服务体系，增强产品价值，为您的工厂提供全面支持!



氢气乙炔压缩  
Hydrogen and acetylene compression



食品制药 Food and pharmacy

We provide consultation service in vacuum pump selection of improved process or complicated working condition, and upgrade customer performance. Our counselors are intensive in industries, projects, operation, and field practice.

We produce not merely excellent products, but also our support to customer as well as its value promotion through technical solution and after-sale system,



煤矿瓦斯抽放 Coal mine gas



医疗负压站 Medical negative pressure station



变压吸附 Pressure swing adsorption

## 技术资料

### 容积的计算

例：空气 35Kg/h、真空度 10.66KPa(abs)、温度 25℃、伴有饱和蒸汽。此时的容积量的计算方式：  
设空气量的容积量为 QA

$$\frac{35}{29} \times 22.4 = 27.03 \text{ Nm}^3 / \text{h} \quad (29=\text{空气分子量})$$

(空气质量 Kg-mol 为 22.4Nm<sup>3</sup>/h)

$$Q_A = \frac{101.3 \times 27.03 \times 298}{10.66 \times 273} = 280.4 \text{ m}^3 / \text{h} = 4.67 \text{ m}^3 / \text{min}$$

此时伴随的水蒸汽量为 Qw

25℃的水蒸汽压为 3.17KPa, 所以

$$\frac{Q_w}{Q_A} = \frac{3.17}{10.66 - 3.17} \quad (\text{容积与分压的比例})$$

$$Q_w = Q_A \times \frac{3.17}{7.49} = 4.67 \times \frac{3.17}{7.49} = 1.98 \text{ m}^3 / \text{min}$$

因此, 吸入状态容积为  
QA + Qw = 4.67 + 1.98 = 6.65  
根据容积计算, 即可参照选型表选择合适的真空泵型号。

### Calculation of volume

eg: air 35Kg/h, vacuum degree 10.66KPa(abs), temp.25℃, with saturated vapor. Volume is calculated as follows:  
Suppose cubical content of air quantity is QA

$$\frac{35}{29} \times 22.4 = 27.03 \text{ Nm}^3 / \text{h} \quad (29=\text{空气分子量}) \text{ air molecular weight}$$

(air quality Kg - mol as 22.4)

$$Q_A = \frac{101.3 \times 27.03 \times 298}{10.66 \times 273} = 280.4 \text{ m}^3 / \text{h} = 4.67 \text{ m}^3 / \text{min}$$

at this moment the vapor amount is Qw  
vapor pressure is 3.17KPa at 25℃, so

$$\frac{Q_w}{Q_A} = \frac{3.17}{10.66 - 3.17} \quad (\text{ratio of volume and partial pressure})$$

$$Q_w = 4.67 \times \frac{3.17}{7.49} = 1.98 \text{ m}^3 / \text{min}$$

Therefore, volume of suction state is  
QA + Qw = 4.67 + 1.98 = 6.65  
Through volume calculation, the pump model is chosen according to model selection form.

### 真空达到时间的计算

即真空容器 (V m<sup>3</sup>) 减压所需要的时间。(又称为加快启动、真空抽吸、吸空、高真空的粗抽、真空搬运等) 计算公式为:

$$t = \frac{V}{Q} \ln \frac{P1}{P2}$$

Q: 真空泵的吸入状态容积量 t: 所要的时间 min  
P1: 开始的压力 P2: 要求的压力  
在真空泵的性能曲线上查到真空泵的吸入容积量后, 按此公式可以计算出达到真空所需要的时间。

### Calculation of vacuum reaching

It is the time for vacuum vessel (V m<sup>3</sup>) to reduce pressure (also called fast start, vacuum suction, rough suction of high vacuum, vacuum transportation etc.). Calculation method is:

$$t = \frac{V}{Q} \ln \frac{P1}{P2}$$

Q: cubical content of vacuum pump suction state  
t: time needed (min). P1: initial pressure. P2: required pressure  
Find out the suction cubical content of vacuum pump from the performance curve, and calculate the time needed for reaching vacuum through this formula.

➤ 水的蒸汽压表 Saturated vapor pressure of water

单位 kpa(abs)

t℃	0	1	2	3	4	5	6	7	8	9
0	0.61	0.66	0.71	0.76	0.81	0.87	0.93	1	1.07	1.15
10	1.23	1.31	1.40	1.50	1.59	1.70	1.82	1.94	2.06	2.20
20	2.34	2.49	2.64	2.81	2.98	3.17	3.36	3.56	3.78	4
30	4.24	4.49	4.75	5.03	5.32	5.62	5.94	6.27	6.62	6.99
40	7.37	7.78	8.20	8.64	9.10	9.58	10.08	10.61	11.16	11.73
50	12.33	12.96	13.61	14.29	15.00	15.73	16.50	17.30	18.14	19.01
60	19.92	20.85	21.83	22.85	23.90	24.99	26.14	27.33	28.55	29.82

➤ 压力单位换算表 Pressure unit conversion

KPa	Pa	bar	Kgf/cm <sup>2</sup>	atm	mAq	Torr(mm Hg)
1	10 <sup>3</sup>	1X10 <sup>2</sup>	1.0197 X10 <sup>-2</sup>	9.869 X10 <sup>-3</sup>	0.10197	7.501
1X10 <sup>-3</sup>	1	1X10 <sup>5</sup>	1.0197 X10 <sup>-5</sup>	9.869 X10 <sup>-6</sup>	1.0197 X10 <sup>4</sup>	7.501 X10 <sup>-3</sup>
1X10 <sup>-2</sup>	1X10 <sup>5</sup>	1	1.0197	0.9869	10.197	750.1
98.07	9.807 X10 <sup>4</sup>	0.9807	1	0.9687	10	735.6
1.013 X10 <sup>2</sup>	1.013X10 <sup>5</sup>	1.013	1.0332	1	10.33	760
9.807	9.807 X10 <sup>3</sup>	0.09807	0.1	0.09678	1	73.55
0.1333	133.3	1.333 X10 <sup>3</sup>	0.3595X10 <sup>-3</sup>	1.316X10	0.0136	1

## 与其他结构的真空泵相比较

项目	往复式真空泵	螺旋式真空泵	双环液环泵
运动原理	往复式 容积型	回转二轴式 容积型	回转水环流 容积型
零件数量	多 ● 大 ● 重	少	最少 ● 小
消磨部品	多 ● 昂贵	少	最少
接触摩擦部 ● 运动部	柱塞环状 ● 阀类	没有	没有
伴有液体 ● 焦油 ● 粉尘	×	△	○
耐腐材料 受腐蚀影响性能下跌	不能制作 大	不能制作 大	以不锈钢为标准, 钛合金等均能接单制作 小
轴封	填料密封件往复运动 漏气严重 需要漏气处理	填料密封件等 漏气严重, 漏气部位多 需要漏气处理	机械密封并以水环密封 完全封住气体不泄露 冲洗式、双端面机械密封均可制作
噪音 噪音对策	低周波音大 需要隔音室	高周波音极大 需要消音箱	高周波音小 不要
振动 ● 脉动	大	小	小
压缩带来的温度上升 冷却器	高温 需要后冷却器 需要水冷降温套	高温 需要后冷却器 需要水冷降温套	低温 需要循环水冷却 不要
备用机 (连续一年使用时)	需要	有备用机放心	基本不用
大修期	1年	1年	1~7年
维修费	更换零件多, 费用高 更换作业量大, 费用高	更换零件略少, 费用少 要订立维修合同	更换零件几乎没有 作业费用低
价格 ● 初期设备费	大	大	小
年维修费 ● 设备费	20%	10%	3%

### Compare with other vacuum pumps in structure

Item	Reciprocating vacuum pump	Screw vacuum pump	Chinco liquid pumps
Operation principle	reciprocating; positive displacement	cycloid type; positive displacement	rotating water ring flow; positive displacement
Parts quantity	more ● big ● heavy	less	least ● small
Wear parts	more ● expensive	less	least
Moving parts	plunger ring ● valve type	no	no
Liquid with tar or dust	×	△	○
Corrosion resistant material	can not be used;	can not be used;	usually use stainless steel, titanium alloy also available;
Performance decline due to corrosion	big	big	small
Shaft seal	packing seal part reciprocating move serious leakage require leakage treatment	packing seal part serious leakage, more leakage point require leakage treatment	mechanical seal and also water ring sealing complete seal of the gas; no leakage flush type, double mechanical seal can be applied
Noise Measures	big low frequency require anechoic chamber	large high frequency require whistle box	small high frequency unnecessary
Vibration ● pulsation	big	small	small
Temperature rise by compression Cooler	hot require aftercooler require water cooling set	hot require aftercooler require water cooling set	low require recycle water cooling not necessary
Spare pump (continuous work for 1 year)	necessary	optional	almost unnecessary
Overhaul period	1year	1year	1~7 year
Maintenance cost	more replaced parts and work, high cost	less replaced parts and work, this need to sign a maintenance contract	hardly no replacing parts; low maintenance cost
Price ● initial equipment cost	high	high	low
Yearly maintenance cost ● equipment cost	20%	10%	3%

## 选型参数表/Technical Parameters

淄博双环真空泵厂 电话: 0533-4415188 传真: 0533-4418588		液环真空泵/液环压缩机/液环机组 参数表		客户单位: _____ 联系人: _____ 电话: _____ 传真: _____ E-mail: _____		
企业分类		<input type="checkbox"/> 设计公司 <input type="checkbox"/> 设备厂商 <input type="checkbox"/> 直接用户 <input type="checkbox"/> 科研机关 <input type="checkbox"/> 工程公司 <input type="checkbox"/> 其他:				
行业		<input type="checkbox"/> 石油化工 <input type="checkbox"/> 微电子 液晶 <input type="checkbox"/> 科研实验 <input type="checkbox"/> 造纸工程 <input type="checkbox"/> 卫生医疗 <input type="checkbox"/> 化学·精细化工 <input type="checkbox"/> 环保工程 <input type="checkbox"/> 机器配套 <input type="checkbox"/> 食品·制药工程 <input type="checkbox"/> 生物工程		用途		
需求数量		安装位置		<input type="checkbox"/> 室内 <input type="checkbox"/> 室外		
吸气 介质	介质种类			工作液种类		
	介质温度	℃		工作液温度		
	流量	kg/m <sup>3</sup>		冷却水种类		
	密度	kg/m <sup>3</sup>		冷却水 入口温度		
吸气 口	吸入压力	mbar		闭环系统		
	极限压力	℃				
	吸气量	m <sup>3</sup> /h				
	入口温度	℃				
排气压力		MPa(G)		冷却水 回水温度		
工作 液	工作液种类			换热器型式		
	工作液温度			换热器材质		
	工作液粘度			内部管线材质		
	工作液密度			分离器材质		
	工作液循环	<input type="checkbox"/> 循环使用 <input type="checkbox"/> 不循环使用		分离器溢流 <input type="checkbox"/> 手动 <input type="checkbox"/> 自动		
传动方式		<input type="checkbox"/> 皮带 <input type="checkbox"/> 直联		分离器补液 <input type="checkbox"/> 手动 <input type="checkbox"/> 自动		
运行状态		<input type="checkbox"/> 连续 <input type="checkbox"/> 间歇		排气冷凝器 <input type="checkbox"/> 有 <input type="checkbox"/> 无		
密封	轴端密封形式	机械密封 <input type="checkbox"/> 单端面 <input type="checkbox"/> 双端面 <input type="checkbox"/> 填料密封		其它要求		
	冲洗方式	<input type="checkbox"/> 内冲洗 <input type="checkbox"/> 外冲洗		泵材质要求		
电机 要求	型号					叶轮
	功率	kW				圆盘
	转速	rpm				泵体
	电源	<input type="checkbox"/> 单相 <input type="checkbox"/> 三相 <span style="float: right;">V</span>				泵盖
	频率	<input type="checkbox"/> 50Hz <input type="checkbox"/> 60Hz				泵轴
	防护等级					轴套
	绝缘等级					联通管
防爆等级			其它件			
配套形式		<input type="checkbox"/> 泵机 <input type="checkbox"/> 不带电机 <input type="checkbox"/> 带电机: <input type="radio"/> 国产 <input type="radio"/> 进口		流程简图 & 其他		

注: 1、不填写项目视为无特殊要求, 可按常规产品制作  
2、在确定液环真空泵吸气量时, 应注意工作液(水)温度对真空泵抽气速率的影响。

ZiBo shuanghuan vacuum pump plant Tel: 0533-4415188 Fax: 0533-4418588		Liquid ring vacuum pump/ compressor/pump unit <b>Technical Parameters</b>		Customer: Tel: E-mail:	Contacto: Fax:
Enterprise Classification		<input type="checkbox"/> design firm <input type="checkbox"/> equipment vendors <input type="checkbox"/> end-user <input type="checkbox"/> research institutions <input type="checkbox"/> engineering unit <input type="checkbox"/> else:			
Industry	<input type="checkbox"/> Petrochemical <input type="checkbox"/> Microelectronics LCD <input type="checkbox"/> Research experiments <input type="checkbox"/> papermaking <input type="checkbox"/> health care <input type="checkbox"/> chemistry·fine chemicals <input type="checkbox"/> environment-friendly project <input type="checkbox"/> support machines <input type="checkbox"/> Food·pharmacy <input type="checkbox"/> bioengineering		Purpose	<input type="checkbox"/> concentration distillation dry <input type="checkbox"/> vacuum dewatering <input type="checkbox"/> vacuum casting <input type="checkbox"/> vacuum dust removal <input type="checkbox"/> reaction coincide <input type="checkbox"/> Vacuum transfer <input type="checkbox"/> vacuum fill <input type="checkbox"/> vacuum molding <input type="checkbox"/> vacuum filtration <input type="checkbox"/> vacuum antiseptic <input type="checkbox"/> vacuum degassing <input type="checkbox"/> Pollution absorptive <input type="checkbox"/> liquid ring compressor <input type="checkbox"/> else	
Quantity		Installation site		<input type="checkbox"/> indoor <input type="checkbox"/> outdoor	
Suction medium	Medium type	Closed cycle system&Operating liquid type			
Medium temperature		℃	Operating liquid temperature		
	Flow rate	Nm <sup>3</sup> /h	Cooling water type		
	Density	kg/m <sup>3</sup>	Cooling water inlet temperature		
Suction port	Suction pressure	mbar	Backwater temperature		
Ultimate pressure		mbar	Heat exchanger type		
Suction capacity		m <sup>3</sup> /h	Heat exchanger material		
Inlet temperature		℃	Connecting pipes material		
Discharge pressure		Separator material			
Operating liquid Type		Separator overflow		<input type="checkbox"/> manual <input type="checkbox"/> automatic	
	Temperature	Separator water feed		<input type="checkbox"/> manual <input type="checkbox"/> automatic	
	Dirty factor	Discharged gas condenser		<input type="checkbox"/> with <input type="checkbox"/> without	
	Density	Other requirements			
	Recycling	<input type="checkbox"/> recycling <input type="checkbox"/> non-recycling		Material	Impeller
Driving mode		<input type="checkbox"/> V-belt <input type="checkbox"/> direct		Separating plate	
Running state		<input type="checkbox"/> continuous <input type="checkbox"/> intermittent		Pump casing	
Seal type	mechanical seal <input type="checkbox"/> single <input type="checkbox"/> double		Pump cover		
	<input type="checkbox"/> packing seal		Shaft		
Flush mode	<input type="checkbox"/> internal flushing <input type="checkbox"/> external flushing		Shaft sleeve		
Motor	Model			Connecting pipe	
	Power	kW		Other components	
	Speed	rpm			
	Voltage	<input type="checkbox"/> one-phase <input type="checkbox"/> triple phase V		Flow diagram  & else	
	Frequency	<input type="checkbox"/> 50Hz <input type="checkbox"/> 60Hz			
Explosion-proof grade					
Protection grade					
Insulation grade					
Match mode	<input type="checkbox"/> pump <input type="checkbox"/> no motor <input type="checkbox"/> motor: <input type="checkbox"/> domestic <input type="checkbox"/> import				
NOTE: 1,Blank item is considered as no special requirement and the product will be made in common way. 2,When making sure pump suction capacity, please consider the influence of operating liquid (water) on speed.					

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