

Liquid ring vacuum pumps 液环式真空泵

two stage 二级设计



SIHI® Pumps

LPHC 65320, LPHC 65327

Pressure range:

入口压力范围: 33 to 1013 mbar

Suction volume flow:

入口流量: 300 to 700 m³/h

CONSTRUCTION TYPE

结构型式

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

Sterling SIHI 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：

handling of nearly all gasses and vapours

可处理几乎所有的气体和蒸汽

non polluting due to a nearly isothermal compression

oil-free, as no lubrication in the working chamber

几乎等温压缩，而且工作腔内无需润滑，因此无污染

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 material, therefore applicable nearly

anywhere

广泛的材质选择，基本上可用于所有场合

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

The Sterling SIHI liquid ring vacuum pumps LPHC 65320 and LPHC 65327 are two stage pumps.

LPHC 65320 和 LPHC 65327 系列二级液环真空泵。

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...900 mbar must be created by robust vacuum pumps.

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

Fields of application are for example:

应用领域：

chemistry and pharmacy for distilling and degassing

化工和制药工业的蒸馏和脱气

electric industry for impregnation and drying

电子工业的浸渍和干燥

plastics industry for degassing etc.

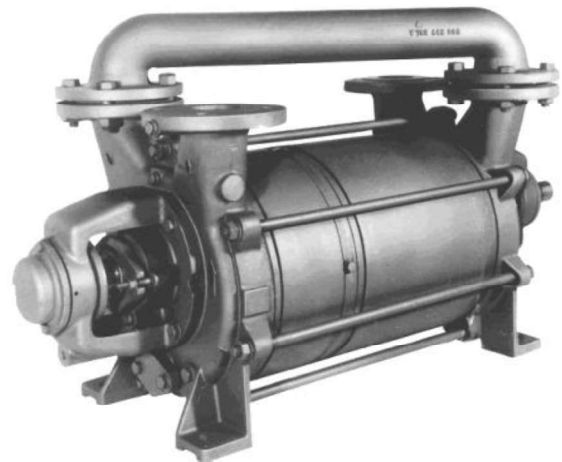
塑料工业的脱气

Brewing Industry for packaging

酿造工业的罐装

ect.

等等



NOTE

注意事项

During the operation the pump must continuously be supplied 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 catalogue part accessories). It is possible to reuse the service liquid.

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（请见附件部分），以重新利用。

The pumps are with a device by which the contaminated service liquid can be drained during operation (dirt drain), if necessary.

泵可按需要配备连接件，以保证在运转条件下连续地排放被污染的工作液。

The direction of the rotation is clockwise, when looking from the drive on the pump.

从泵的驱动端看，泵的旋转方向为顺时针

GENERAL TECHNICAL DATA

常规技术数据

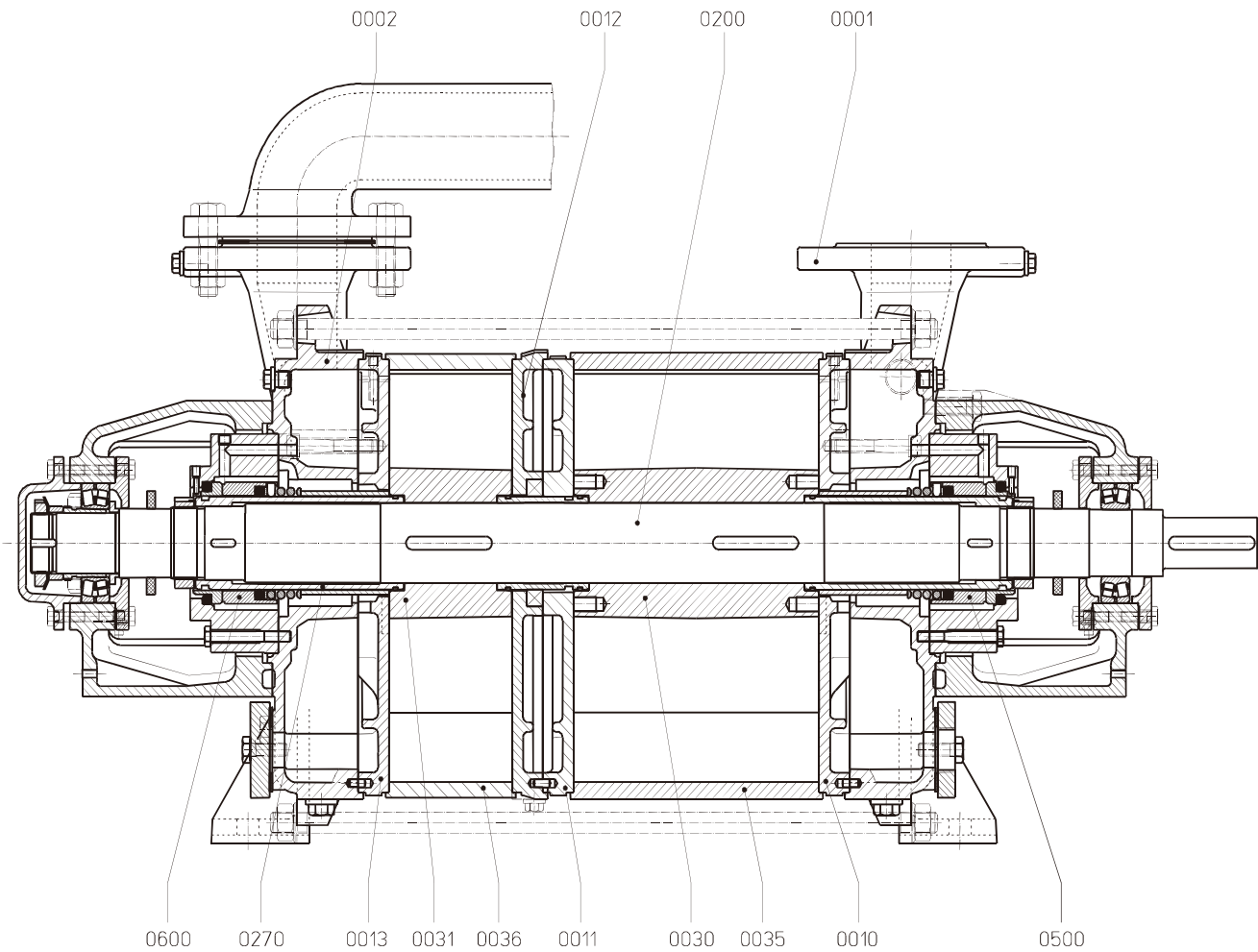
pump type 泵型号	Unit 单位	LPHC 65320	LPHC 65327
Speed 转速 50 Hz 60 Hz	rpm	1450 1740	
Max. overpressure on compression 最大背压	bar	1.0	0.8
Permissible pressure difference between suction and discharge side 极限进出口压差 max. min.	bar	1.5 0.2	1.0 0.2
Hydraulic test (over pressure) 水压测试（表压）	bar	3.0	
Moment of inertial of the rotating pump parts and of the water filling 满水时转动部件的惯性力矩	kg · m ²	0.32	0.38
Sound pressure level at a suction of 80 mbar 在80mbar 入口压力下的噪音	dB (A)	76 79	76 79
Min. permissible pulley diameter for V-belt drive 三角皮带驱动时的最小皮带轮直径	mm	160	
max. gas temperature 最大吸气温度 Dry 干气 Saturated 饱和气	°C °C	200 100	
Service liquid 工作液 Max. permissible temperature 允许最高温度 Min. permissible temperature 允许最低温度 Max. viscosity 最大粘度 Max. density 最大密度	°C °C mm ² /s kg/m ³	80 10 90 1200	
Liquid capacity up to middle of shaft 到轴中心线的工作液的量	liter	16	19
Max. flow resistance of the heat exchanger 热交换器的最大管路阻力	bar	0.2	

In selecting a pump, avoid choosing one which is likely to be operating at a combination of its maximum permissible limits e.g. maximum.
不允许将几种极限值同时选择

Material design 材料设计

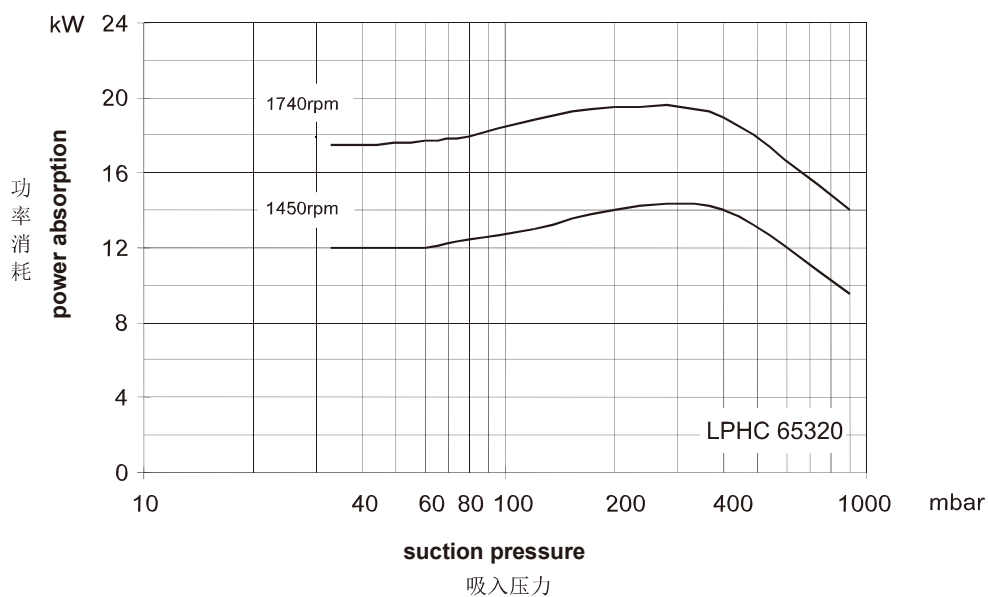
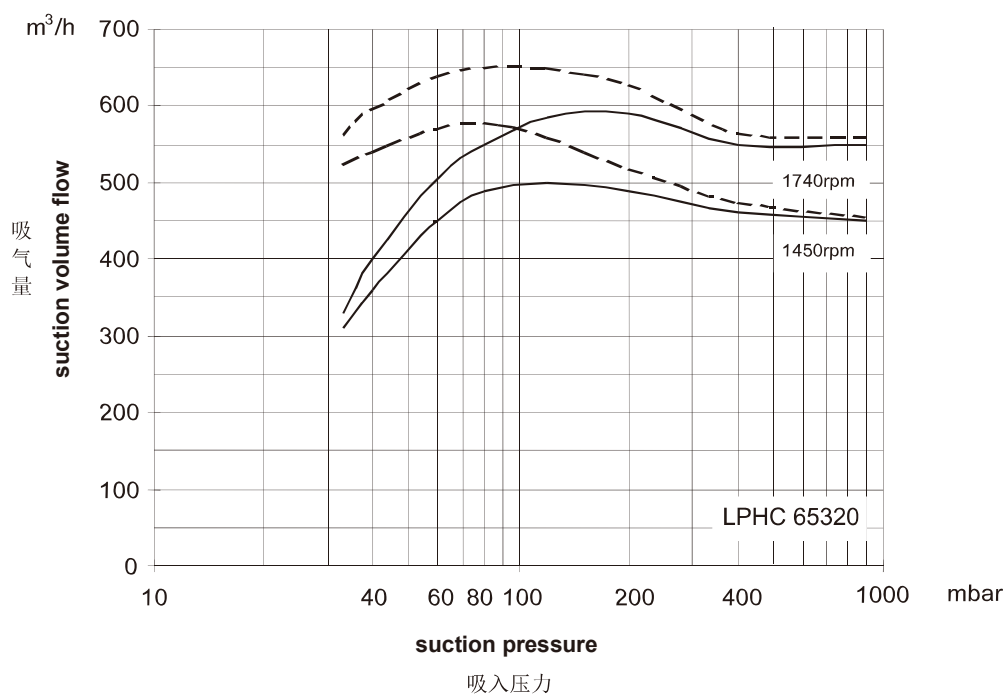
Item 位号	COMPONENTS 零件	MATERIAL DESIGN 材料设计		
		0K	SZ	4B
0001, 0002	Casing 泵盖	0.6025	0.6025	1.4408
0010, 0011, 0012, 0013	Guide disk 导流盘	0.6025	1.4408	1.4408
0030, 0031	Vane wheel impeller 叶轮	1.4308	1.4408	1.4408
0035, 0036	Central body 中间体	0.6025	0.6025	316
0200	Shaft 轴	45		
0270	Shat sleeve 轴套	316		
0500, 0600	mechanical seal 机械密封	FBPFF Q22BM1GG	FBPFF Q22BM1GG	GBM1GG Q22BM1GG

Sectional drawing 剖视图 LPHC 65320, LPHC 65327



Suction volume flow and power absorption LPHC 65320

LPHC 65320 吸气量和功率消耗



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 干气: 20°C
 - water vapour saturated air 饱和空气: 20°C
- service liquid 工作液:
 - water 水: 15°C

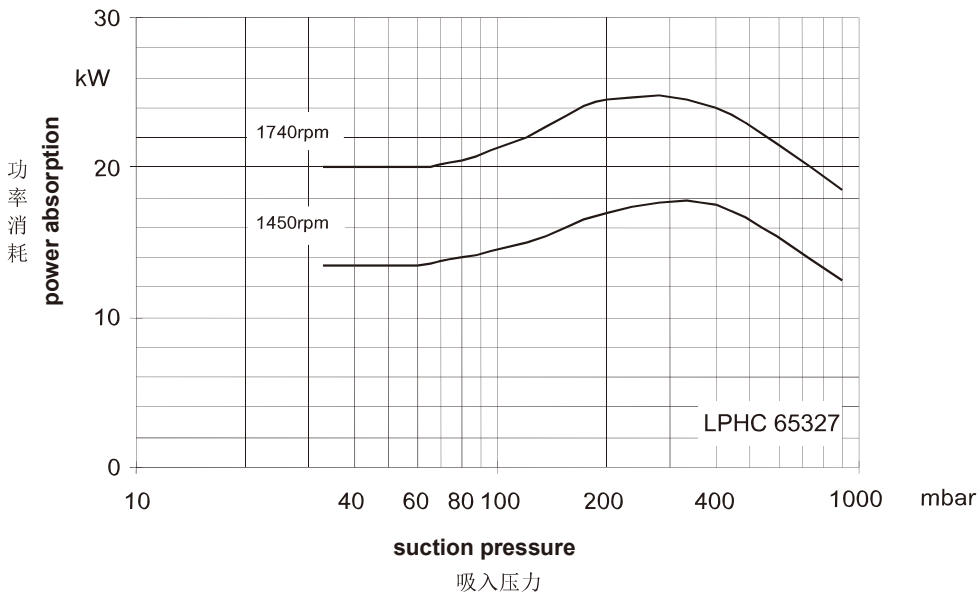
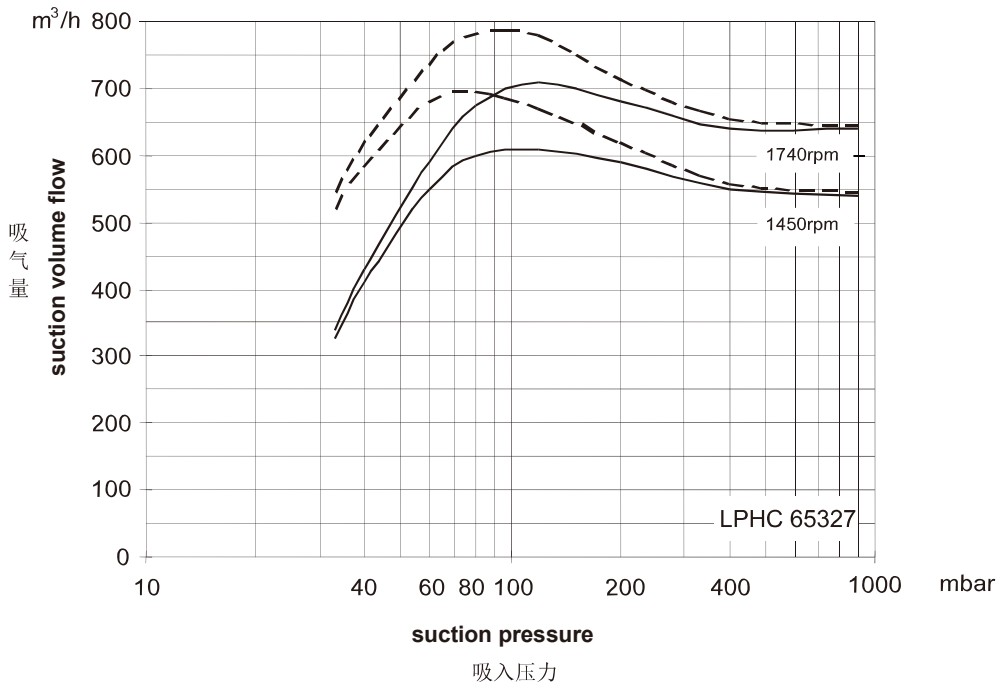
Compression pressure 排气压力: 1013 mbar (atmospheric pressure 大气压)

The suction volume flow is applied to the suction pressure 吸气量是入口压力下的流量

Tolerance of the operating data 10% 性能允许误差10%

Max. fresh water need with lowest suction pressure 最大补充水的用量是最低入口压力下的流量

Suction volume flow and power absorption LPHC 65327
LPHC 65327 吸气量和功率消耗

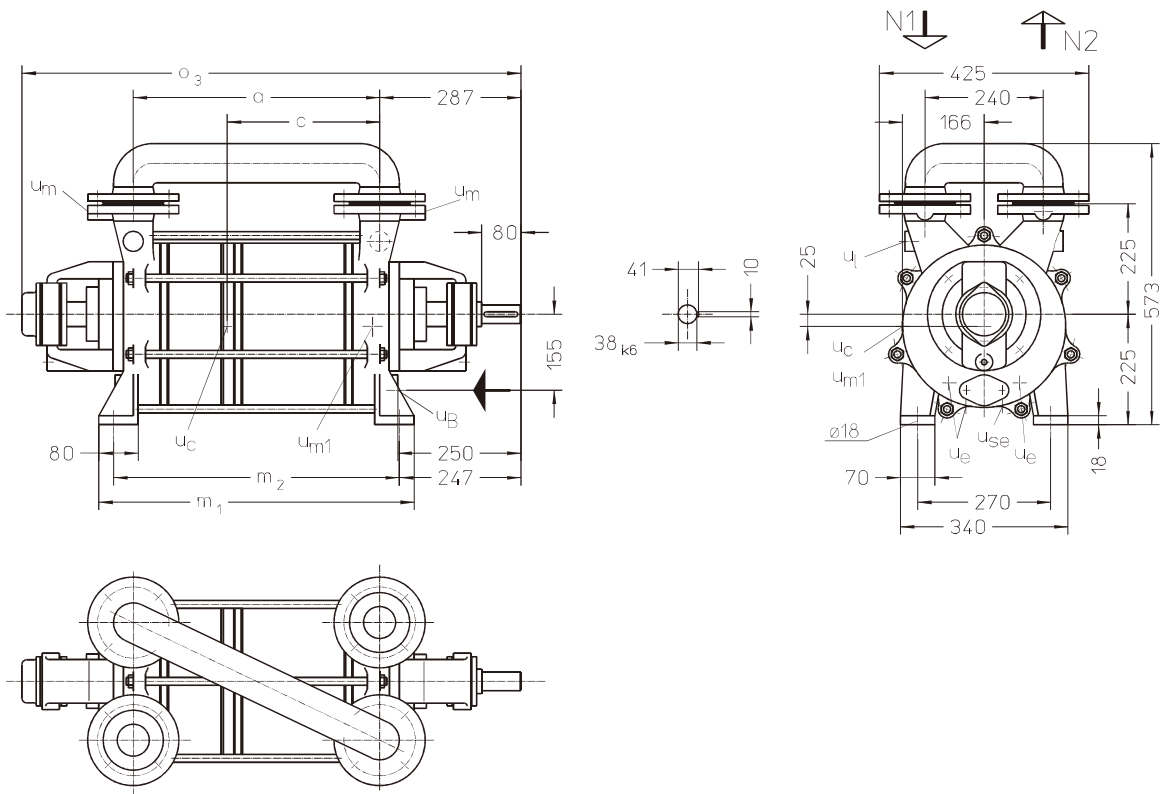


The operating data are applicable under the following conditions 性能曲线基于如下工况：

- pumping medium 吸气介质：
 - dry air 干气：20°C
 - water vapour saturated air 饱和空气：20°C
- service liquid 工作液：
 - water 水：15°C

Compression pressure 排气压力： 1013 mbar (atmospheric pressure 大气压)
The suction volume flow is applied to the suction pressure 吸气量是入口压力下的流量
Tolerance of the operating data 10% 性能允许误差10%
Max. fresh water need with lowest suction pressure 最大补充水用量是最低入口压力下的流量

Dimension table LPHC 65320, LPHC 65327
单泵尺寸表 LPHC 65320, LPHC 65327



- N 1 = gas-inlet DN 65
进气口 DN65

N 2 = gas-outlet DN 65
排气口DN65

u_B = connection for service liquid G 1
工作液接口G1

u_c = connection for protection cavitation G ¼
气蚀保护接口G¼

u_e = drain connection G ½
排液接口G ½
- u_l = connection for vent cock G ¾
放气旋塞接口G ¾

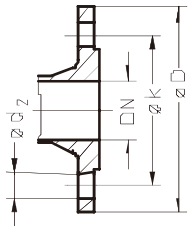
u_m = connection for pressure gauge G ¼
压力表接口G¼

u_{m1} = connection for drain valve G ¾
排水阀接口G¾

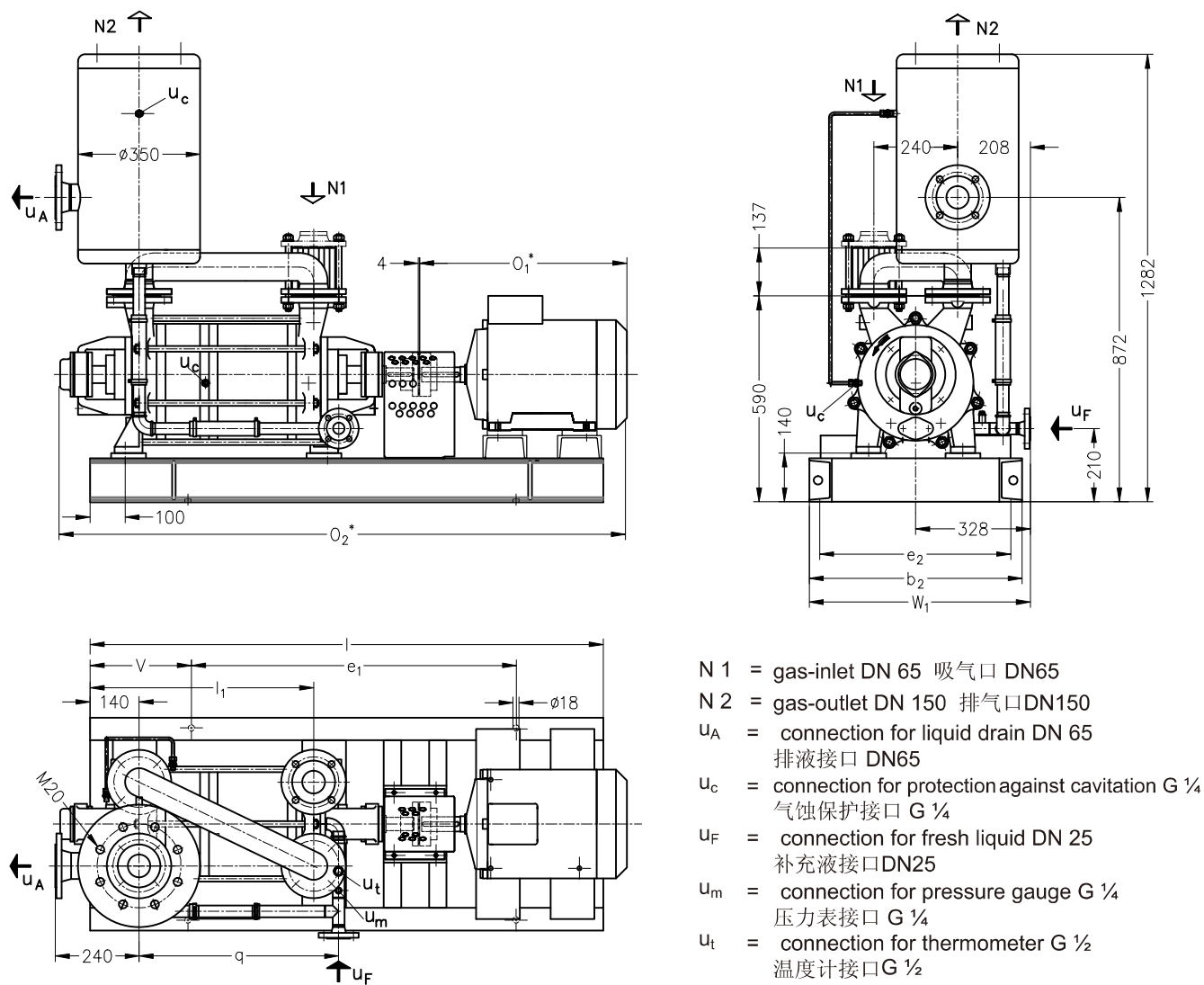
u_{se} = connection for dirt drain G ½
排污接口G ½

Pump 泵型号	a	c	m ₁	m ₂	o ₃	weight abt. Kg 重量约 Kg for material design 材料设计		
						0K	SZ	4B
LPHC 65320	500	309	640	580	1013	220	222	228
LPHC 65327	566	375	706	646	1079	241	243	250

flange connections as per DIN 2501 PN 10 法兰尺寸按DIN 2501 PN10标准	
DN	65
k	145
D	185
number x d ₂	4 x 18

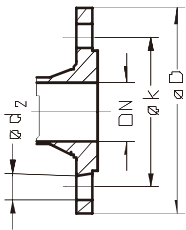


Arrangement drawing LPHC 65320, LPHC 65327 with overhead liquid separator
带附件外形图 LPHC 65320, LPHC 65327 (带上置式气液分离器)



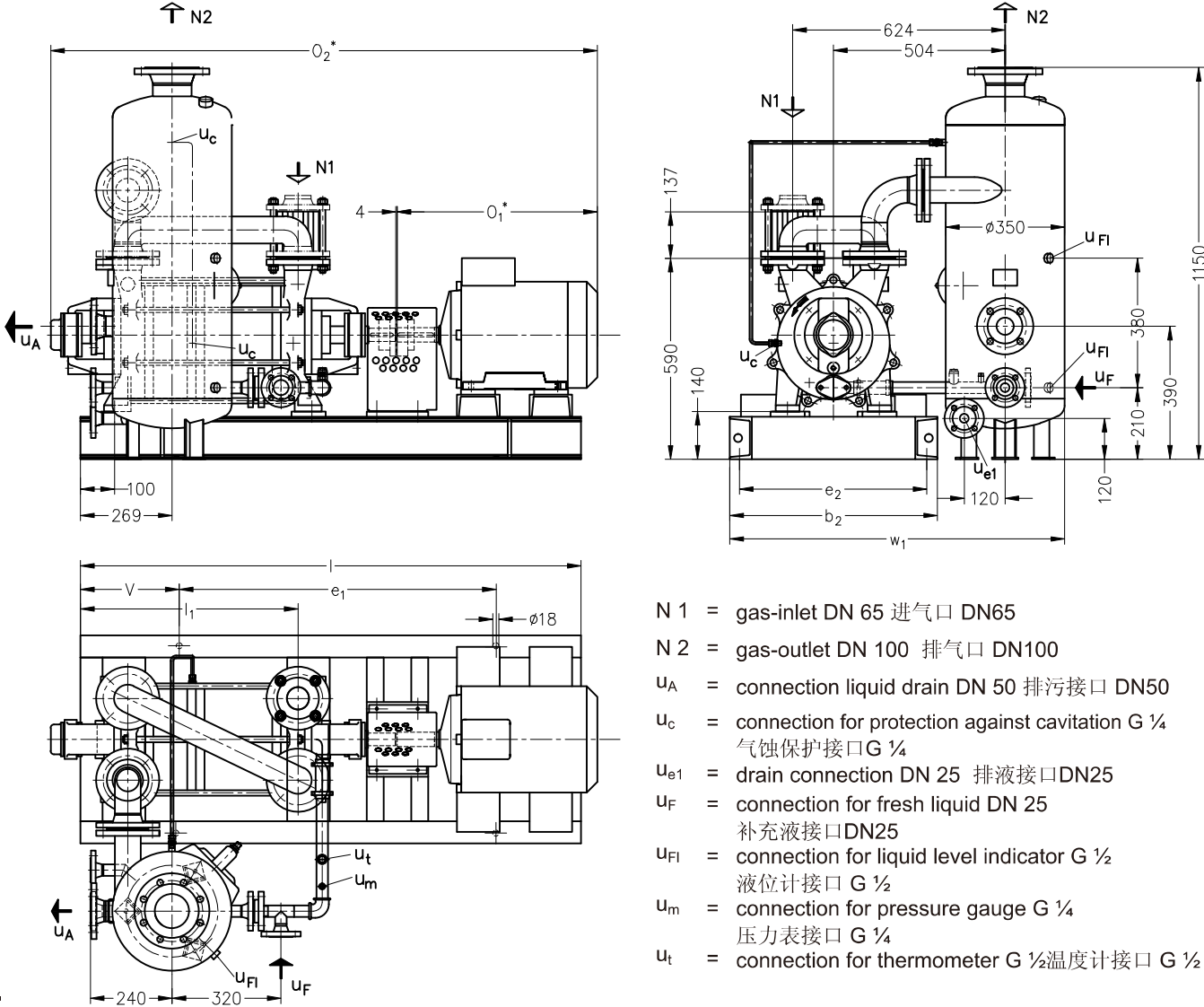
Pump 泵型号	electric motor 电机 50 Hz			b_2	e_1	e_2	l	l_1	o_1^*	o_2^*	v	w_1	q	weight abt. Kg重量 at motor (配电机)	
	size 规格	IP 55	EXdIIBT4 Gb											IP 55	EXdIIBT4 Gb
LPHC 65320	160 L	15	-	610	940	550	1470	640	640	1657	280	655	572	475	-
	180 M	18,5	-				1500		730	1747				535	-
	160 L	-	15				1470		710	1727				-	549
	180 M	-	18,5				1500		730	1747				-	640
LPHC 65327	180 M	18,5	-	660	1060	600	1620	706	730	1813	280	680	638	555	-
	180 L	22	-						730	1813				565	-
	180 M	-	18,5						730	1833				-	695
	180 L	-	22						750	1853				-	711

flange connections to DIN 2501 PN 10 法兰尺寸按DIN 2501 PN10标准			
DN	25	65	150
k	85	145	240
D	115	185	285
number x d2	4 x 14	4 x 18	8 x 22



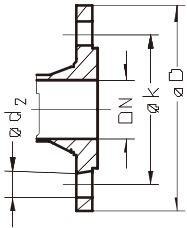
* Dimension depend on the motor make
带*的尺寸取决于电机

Arrangement drawing LPHC 65320, LPHC 65327 with upright liquid separator
带附件外形图 LPHC 65320, LPHC 65327 (带侧置式气液分离器)



Pump 泵型号	electric motor 电机 50 Hz				b_2	e_1	e_2	l	l_1	O_1^*	O_2^*	v	w_1	weight abt.重量约 kg at motor (配电机)	
	size 规格	IP 55	kW	EXdIIBT4 Gb										IP 55	EXdIIBT4 Gb
LPHC 65320	160 L	15	-		610	940	550	1420	640	640	1657	280	984	495	-
	180 M	18.5	-					1500		730	1747			558	-
	160 L	-	15					1420		710	1727			-	580
	180 M	-	18.5					1500		730	1747			-	670
LPHC 65327	180 M	18,5	-		660	1060	600	1620	706	730	1813	280	1009	560	-
	180 L	22	-							730	1813			585	-
	180 M	-	18.5							730	1833			-	710
	180 L	-	22							750	1833			-	726

flange connections to DIN 2501 PN 10 法兰尺寸按DIN 2501 PN10标准				
DN	25	50	65	100
k	85	125	145	180
D	115	165	185	220
number x d_2	4 x 14	4 x 18	4 x 18	8 x 18



* Dimension depend on the motor make
带*的尺寸取决于电机

Fresh water requirements in [m³/h] dependent on suction pressure, speed, mode of operation and difference in temperature
水流量需求 [m³/h]（根据吸入压力、转速、运行方式和温差）

suction pressure 入口压力 [mbar]		33					120					200					400				
pump type 泵型号	Speed 转速	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]				
	[rpm]	20	10	5	2	20	10	5	2	20	10	5	2	20	10	5	2				
LPHC65320	1150	0,30	0,55	0,91	1,51	2,7	0,33	0,58	0,94	1,50	2,5	0,34	0,59	0,93	1,42	2,2	0,32	0,52	0,77	1,09	1,5
	1450	0,43	0,75	1,17	1,77		0,46	0,77	1,18	1,73		0,47	0,78	1,15	1,61		0,43	0,67	0,92	1,20	
	1750	0,59	0,97	1,42	2,00		0,61	0,98	1,41	1,91		0,61	0,95	1,33	1,74		0,53	0,78	1,03	1,27	
LPHC65327	1150	0,34	0,61	1,00	1,60	2,7	0,37	0,64	1,02	1,58	2,5	0,39	0,67	1,03	1,51	2,2	0,37	0,60	0,85	1,15	1,5
	1450	0,48	0,81	1,25	1,84		0,51	0,85	1,27	1,80		0,55	0,88	1,25	1,69		0,50	0,75	1,00	1,25	
	1750	0,65	1,05	1,51	2,05		0,69	1,08	1,50	2,00		0,71	1,08	1,44	1,82		0,61	0,87	1,10	1,31	

FB = fresh liquid requirements 全部采用新鲜工作液
KB = combined liquid service water 20 °C, 10 °C, 5 °C, 2 °C warmer than the fresh water.
比新鲜水温高20 °C, 10 °C, 5 °C, 2 °C的混合工作液

Data regarding the pump size - order hints
关于泵规格的数据— 定单代码

series + size 系列+规格	bearing + direction of rotation 轴承+转向	shaft sealing 轴封		material design 材料设计	casing seal 泵体密封
	B• two grease lubricated antifriction bearing 二个脂润滑的滚动轴承	YTB	Mechanical seal 机械密封 O-rings Perbunan O型圈为丁苯橡胶	0K main parts GG 主要部件为铸铁	0 liquid seal 液封
	•N one shaft end clockwise 从轴端看顺时针方向旋转	XAE	Mechanical seal 机械密封 O-rings Viton encapsulated with Teflon O型圈为氟橡胶外包裹聚四氟乙烯	SZ Main parts from 0.6025, impeller \ guide disk from 1.4408 主要部件为铸铁，但叶轮、导流盘为不锈钢	
		BCK	Mechanical seal 机械密封 O-rings Viton encapsulated with Teflon O型圈为氟橡胶外包裹聚四氟乙烯	4B main parts 1.4408 主要部件不锈钢	
LPHC 65320 65327	BN	YTB, XAE, BCK		0K, SZ, 4B	0

Pump-set Design
泵组设计

Motor selection table
电机选择表

Pump-set construction type 泵组结构类型	electric motor 电机 50 Hz					
Pump 单泵	motor protection 保护等级			motor protection 保护等级		
Part group and Couplings 零件组及联轴器	IP 55			EXdIIBT4 Gb		
	kW	Size 规格	Designation 代号	kW	Size 规格	Designation 代号
three phase motor (50 Hz, 380 VΔ) at 1450 rpm 三相电动机, (50 Hz, 380 VΔ) 1450 rpm	15	160 L	UB	15,0	160 L	UK
	18,5	180 M	VB	18,5	180 L	VK
	22	180 L	WB	22	180 L	WK

Example for ordering:
订单范例:
The pump size LPHC 65327 BN YTB 0K 0 with 18.5 kW three phase motor (50 Hz, 380 VΔ) 1450 rpm IP55 has the complete order number:
LPHC 65327 BN YTB 0K 0 VB
泵型号LPHC 65327 BN YTB 0K 0 带18.5 kW三相电动机(50 Hz, 380 VΔ) 1450 rpm IP55的完整订单号为: **LPHC 65327 BN YTB 0K 0 VB**
Motor: If motors with the other voltage and frequency are required special information should be given.
电机: 如果需要其它电压和频率的电机, 需明示。

Accessories

附件

recommended accessories 推荐附件			LPHC 65320	LPHC 65327
Overhead liquid separator 上置式气液分离器			XBa 5540 35 kg	
material design	20 steel / 316	SIHI part No. SIHI部件号	43148464 43148483	
service liquid line 工作液管路				
material design	Galvanized镀锌 / 316	SIHI part No. SIHI部件号	43148517 43148518	43148519 43148530
cavitation protection line 气蚀保护管路				
material design	Galvanized镀锌 / 316	SIHI part No. SIHI部件号	43148549 43148550	
Upright liquid separator 侧置式气液分离器			XBp 0912 51 kg	
material design	20 steel / 316	SIHI part No. SIHI部件号	43148484 43148485	
service liquid line 工作液管路				
material design	Galvanized镀锌 / 316	SIHI part No. SIHI部件号	43148534 43148535	43148536 43148537
cavitation protection line 气蚀保护管路				
material design	Galvanized镀锌 / 316	SIHI part No. SIHI部件号	43148551 43148552	
discharge line (bend) 排出管路				
material design	35 / 316	SIHI part No. SIHI部件号	43148554 43148555	
SIHI gas injector 大气喷射器			GPV 6011	GPV 6012
at service liquid temperature 工作水温度			15 °C (0.6025)	10003373
at service liquid temperature 工作水温度			30 °C (1.4408)	10003377
SIHI ball type non-return valve SIHI 球型止回阀			XCk 65 / 4,4 resp. 14,2 kg	
material design	0.6025 / NBR	SIHI part No.	20097937	
材料设计	1.4408 / PTFE	SIHI部件号	20097938	
Motor in case of standard design 电机 标准设计			160 L	180 M
IP 55			15 kW	18,5 kW
			108kg	127 kg
			42051912	42051913
EXdIIBT4 Gb			160 L	180 M
			15 kW	18,5 kW
			124 kg	200 kg
			42053211	42053213
Couplings 联轴器 for motor 电机IP 55			B 125 XL6, 38/42	B 140 XL6, 38/48
			43091006	43143878
Contact safety device 连轴器罩				
material design	20 steel 钢板	SIHI part No.	43042269	
材料设计	AL 铝板	SIHI部件号	43156310	
Base frame 底座			105 kg	128 kg
material design	Q235 steel 焊接	type / weight 型号 / 重量	43144124	
材料设计		SIHI part No. SIHI部件号	43144127	

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