

# ZW 系列

## 自吸式涡流不堵塞排污泵

Self-priming Non-clogging Sewage Pump



### 使用说明书 Use Specification

#### 重要

操作人员在使用本产品前，请务必仔细阅读产品说明书，以确保操作安全。

#### IMPORTANT

Please ensure that these instructions are read and understood by machine operators before using the product.

请详阅手册内容并善加保存  
Please Read and Save This Manual



郑州市神龙泵业有限公司

ZHENGZHOU SHENLONG SUBMERSIBLE PUMP CO.,LTD

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## 一、前言 Preface

本单位是从事泵类产品开发生产的专业单位，拥有雄厚的技术力量，完善的电脑检测设备和丰富的制造经验。最新推出的ZW系列自吸式涡流不堵塞排污泵，设计先进、运转平稳、结构紧凑、应用广泛。欢迎选用ZW系列自吸式涡流不堵塞排污泵，定能使您达到满意的效果。

This unit is engaged in pump product development and production of professional units, with strong technical force, perfect computer testing equipment and rich manufacturing experience. The latest ZW series self-priming non-clogging sewage pump, advanced design, smooth operation, compact structure, widely used. Welcome to choose ZW series self-priming non-clogging sewage pump, will be able to make your satisfactory effect.

## 二、特点 Traits

ZW自吸式涡流不堵塞排污泵，又称固液泵或杂质泵。该系列泵水力设计独特，叶轮是缩在单独的叶轮室内，连接叶轮室的是压水室，当叶轮旋转时，泵内液体产生强烈的轴向涡流作用，使进口造成真空，出口产生扬程。因而杂质可以从压水室排出，所以它的流道是完全畅通的，其排污效果是其他自吸式排污泵无可比拟的。

本单位生产的ZW自吸式涡流不堵塞排污泵即可象一般自吸清水泵那样不需要安装底阀，又可吸排含有大颗粒固体块、长纤维、沉淀物、废矿杂质、粪便处理及一切工程污水物。可广泛适用于市政排污工程、轻工、造纸、纺织、食品、化工、电业、石油、矿山和河塘养殖等行业。它是目前国内抽送固体颗粒、纤维、浆料和混合悬浮等介质最理想的杂质泵。

ZW series self-priming non-clogging sewage pump, also known as solid-liquid pump or impurity pump. The series pump hydraulic design is unique, the impeller is shrunk in a separate impeller chamber, connected to the impeller chamber is the pressurized water chamber, when the impeller rotation, the pump fluid generated a strong axial Eddy, resulting in a vacuum at the entrance and lift at the exit. So impurities can be discharged from the pressure chamber, so its channel is completely smooth, its sewage effect is other self-priming sewage pump incomparable.

The ZW series self-priming non-clogging sewage pump as the general self-priming water pump does not need to install the bottom valve, it can also absorb and discharge the solids containing large particles, long fibers, sediment, waste mineral impurities, waste treatment and all engineering sewage. It can be widely used in municipal sewage disposal engineering, light industry, paper making, textile, food, chemical industry, electric industry, petroleum, mining and pond farming industries. At present, it is the most ideal impurity pump for pumping solid particles, fiber, slurry and mixed suspension etc.

## 三、型号意义 Model meaning



#### 四、性能参数表 Performance table

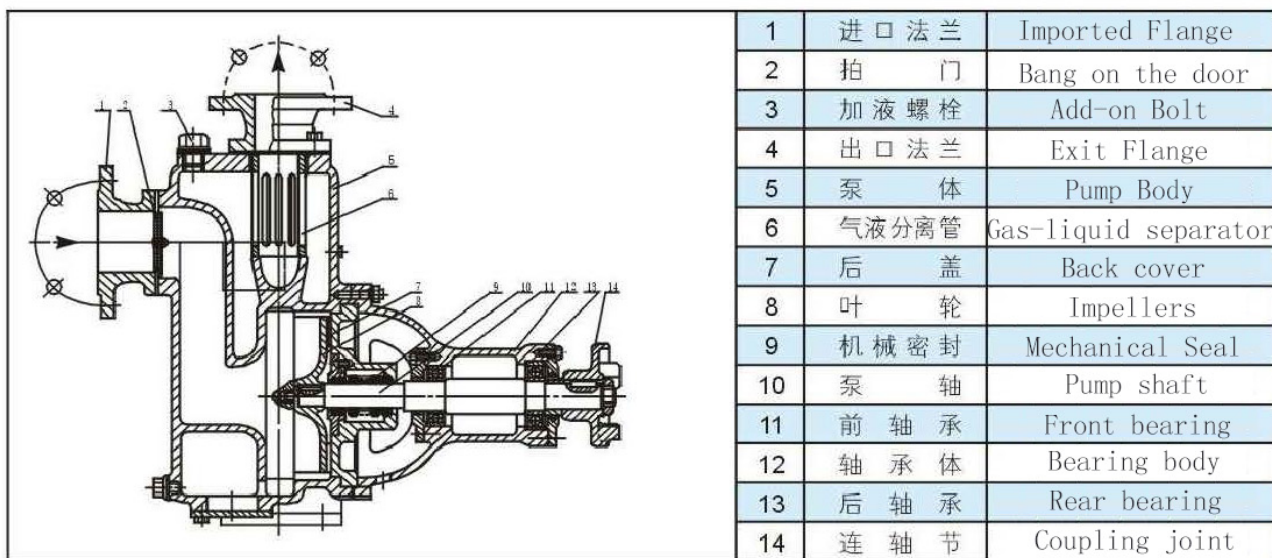
型号 Model	流量 Capacity (m <sup>3</sup> /h)	扬程 Head (m)	转速 Speed (r/min)	自吸高度 Self-priming height (m)	电机功率 Motor power (KW)	允许通过异物(mm)		压力 控制范围 Pressure Control Range (MPa)
						颗粒直径	纤维长度	
						Particle diameter	Fibre length	
25ZW8-15	8	15	2900	5.5	1.5	15	120	0.1-0.18
32ZW10-20	10	20	2900	5.5	2.2	20	150	0.15-0.25
40ZW20-15	20	15	2900	5.5	2.2	25	230	0.1-0.18
40ZW15-30	15	30	2900	5.5	3	25	230	0.24-0.32
50ZW10-20	10	20	2900	5.5	2.2	30	250	0.15-0.25
50ZW20-15	20	15	2900	5.5	2.2	30	250	0.1-0.18
50ZW15-30	15	30	2900	5.5	3	30	250	0.24-0.32
65ZW30-18	30	18	2900	5.5	4	40	380	0.13-0.20
65ZW20-30	20	30	2900	5.5	5.5	40	380	0.24-0.32
65ZW25-40	25	40	2900	5.5	7.5	40	380	0.32-0.42
80ZW40-16(2)	40	16	2900	5.5	4	50	400	0.11-0.18
80ZW40-16(4)	40	16	1450	5.5	4	50	400	0.1-0.18
80ZW65-25	65	20	2900	5.5	7.5	50	400	0.18-0.28
80ZW80-35	80	35	2900	5.5	15	50	400	0.24-0.37
80ZW80-45	80	45	2900	5.5	22	50	400	0.38-0.48
80ZW50-60	50	60	2900	5.5	22	50	400	0.55-0.65
100ZW100-15	100	15	1450	5.5	7.5	60	500	0.1-0.18
100ZW80-20	80	20	1450	5.5	7.5	60	500	0.15-0.25
100ZW100-20	100	20	1450	5.5	11	60	500	0.15-0.25
100ZW100-30	100	30	2900	5.5	22	60	500	0.24-0.32
100ZW80-60	80	60	2900	5.5	37	60	500	0.55-0.65
100ZW80-80	80	80	2900	5.5	45	60	500	0.75-0.82
125ZW120-20	120	20	1450	5.5	15	80	750	0.13-0.22
150W200-15	200	15	1450	5.5	15	80	750	0.1-0.18
150ZW200-20	200	20	1450	5	22	80	750	0.15-0.25
150ZW200-28	200	28	1450	5	30	80	750	0.23-0.30
150ZW180-40	180	40	1450	5	55	80	750	0.32-0.42
200ZW280-14	280	14	1450	5	22	120	1000	0.1-0.17
200ZW300-18	300	18	1450	5	37	120	1000	0.13-0.20
200ZW300-25	300	25	1450	5	45	120	1000	0.18-0.28
200ZW280-28	280	28	1450	5	55	120	1000	0.21-0.31
250ZW400-22	400	22	1450	4.5	55	150	1600	0.17-0.25
300ZW800-14	800	14	1450	4.5	55	170	2000	0.1-0.17

## 五、泵的结构 Pump construction

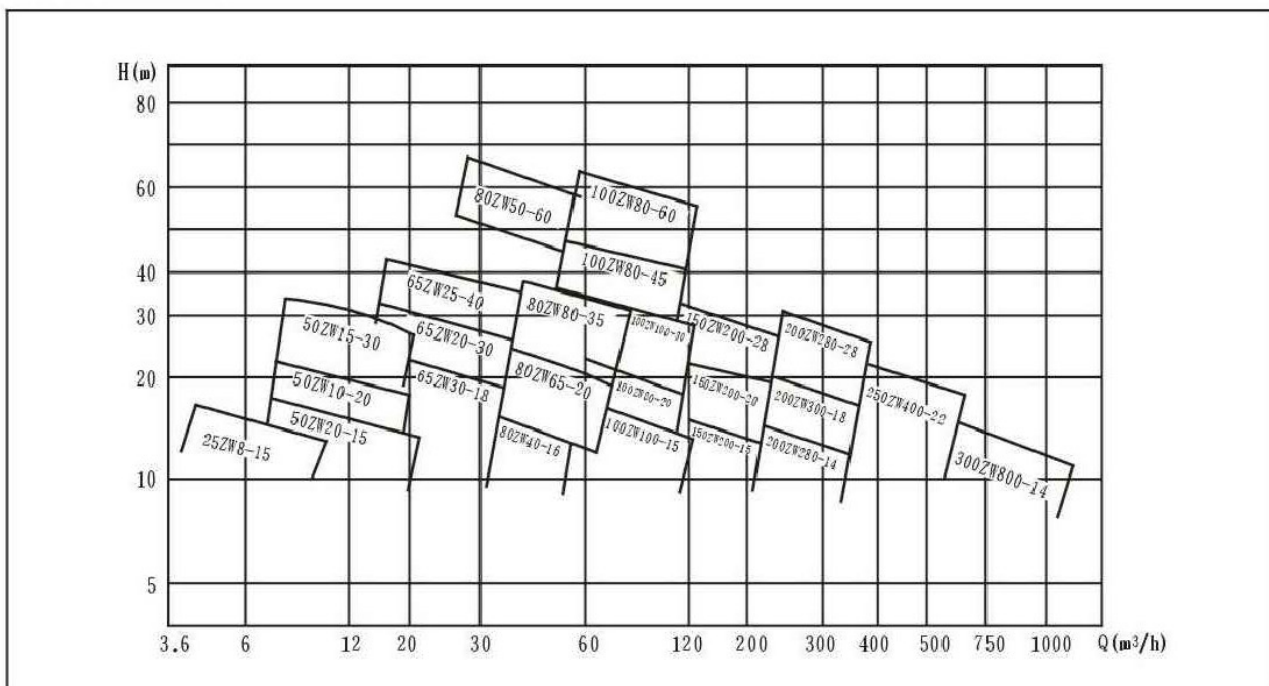
本系列泵为单级单吸卧式，吸入口为轴向吸入，排出口为垂直向上，自吸入口向电机端看为顺时针方向旋转。

泵进、出口联接：按基本型为法兰(GB115.7-8-88)。配套电机为Y型异步电动机，可选择普通型或防爆型，根据要求另行商定。本型泵泵体材质选用HT200、叶轮材质选用QT400-18，也可根据用户需要选用不锈钢，用于输送腐蚀性介质。

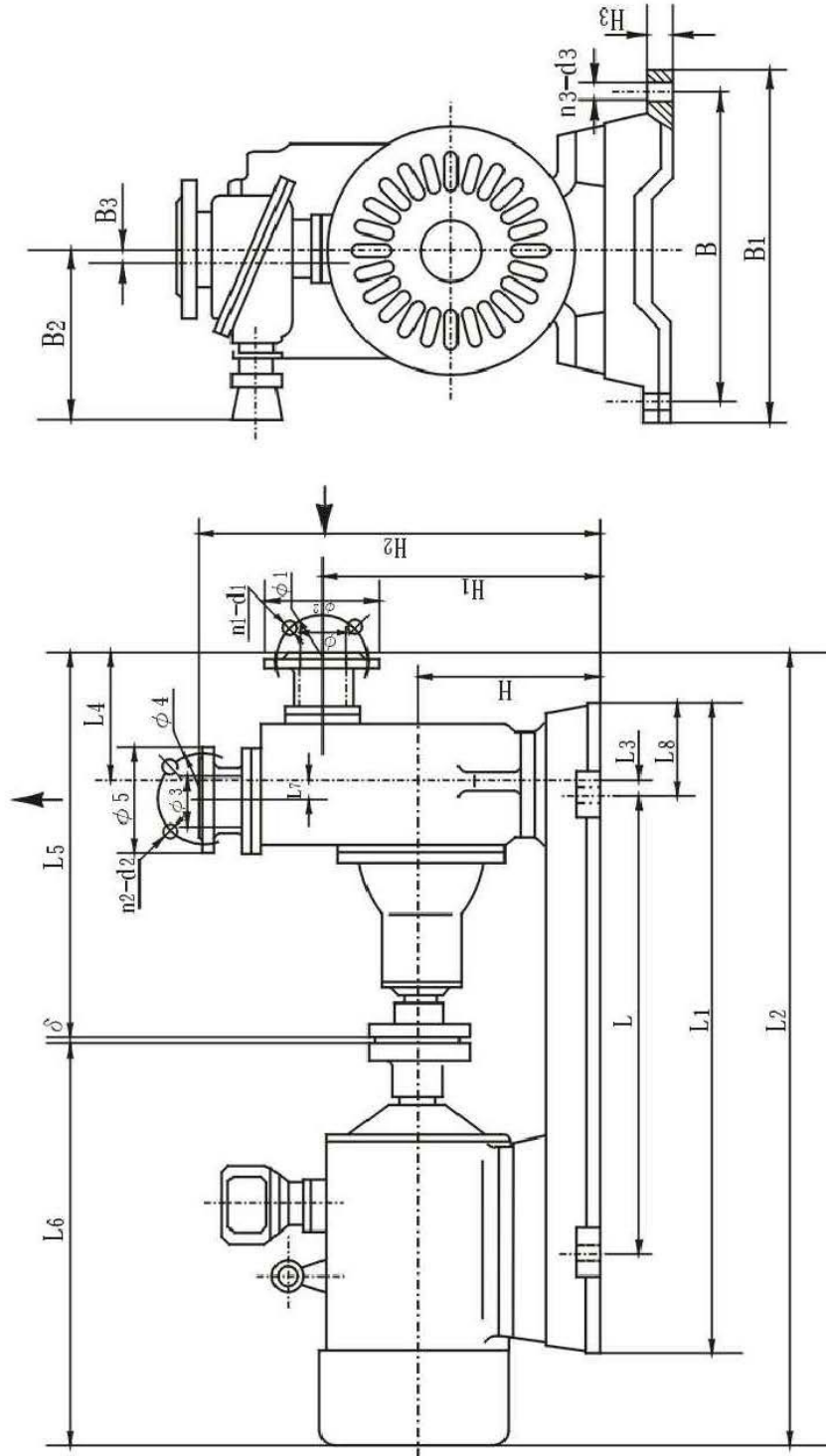
This series of single-stage single-suction pump, suction inlet for axial suction, outlet for vertical upward, from the suction inlet to the motor end to see the clockwise direction rotation. Connection of pump inlet and outlet: flange according to basic type (GB115.7-8-88). Matching Motor is y-type asynchronous motor, can choose ordinary type or explosion-proof type, according to the requirements to be agreed separately. The pump body material selection HT200, impeller material selection QT400-18, also according to user needs to select stainless steel, used for conveying corrosive media.



## 六、型谱图谱图 Atlas of style



七、外形及安装尺寸 Outline and mounting dimensions

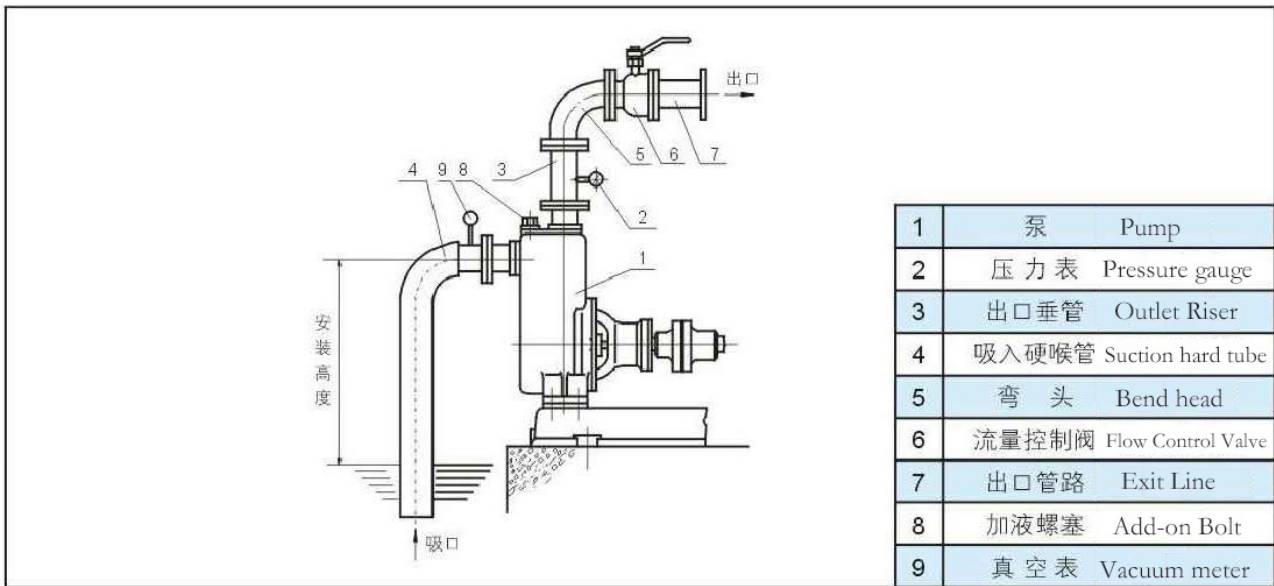




## 九、泵的安装 Pump installation

泵安装好坏对泵的运行和寿命有较大影响，所以必须仔细进行。(规范的泵管路安装见示意图)

Pump installation is good or bad on the operation and life of the pump has a greater impact, so must be carried out carefully. (schematic diagram of pump piping installation)



1、泵吸入口的安装高度尽量不要超过5米，应特别注意吸入管路的密封性，以免漏气而影响泵的自吸能力和正常运行。

2、泵的出口处应先装上一段垂管(一般为0.4~1米)和压力表，然后再安装出口流量控制阀门及其他管路。

3、要合理配置泵进、出口管路的长度和管径，减少不必要的沿程水头损失。(可参考直管摩擦损失简表进行估算)

4、长距离输送时应选用较大管径。泵的管路应有自己的支架，泵体本身不允许承受管路的负荷。

5、排出管路如装逆止阀应装在出口流量控制阀门外面。

1. Pump suction inlet installation height should not exceed 5 meters, should pay special attention to the suction pipeline sealing, so as not to leak and affect the pump's self-priming capacity and normal operation.

2. PUMP outlet should be installed first a section of vertical pipe (generally 0.4 ~ 1 meters) and pressure gauge, and then install the outlet flow control valve and other pipelines.

3. The length and diameter of inlet and outlet pipelines should be rationally arranged to reduce unnecessary head loss along the way. (refer to the straight tube friction loss table for an estimate)

4. Large diameter pipe should be selected for long distance transportation. The pump pipeline should have its own support, the pump body itself does not allow to bear the load of the pipeline.

5. Discharge line such as installed check valve should be installed in the outlet flow control valve outside.



## 十、泵的使用 pump use

- 1、使用前，应检查泵的旋转方向是否正确，转动是否灵活。
- 2、拧开泵体上方的加液螺塞，加满储液，然后旋紧螺塞。以后开机不需再加注储液。不应在泵储液不足的情况下启动运转，否则泵不能正常工作，且易损坏机械密封。
- 3、开机时，应先开启出口流量控制阀，以便于自吸过程中的气体排出。启动后，再调节好出口流量控制阀的开度，使压力表读数指到规定区域(各种泵型压力控制范围表)，避免泵在规定区域的下限范围内工作，以防因轴功率过大而引起电动机过载烧坏或因流量过大而使泵产生汽蚀，影响泵正常运转，使泵强烈振动和发出噪声。
- 4、运转过程中，应经常检查泵和电动机的温升情况，如发现噪声和其他不正常声音时，应停机检查，排除故障后方可再运行。
- 5、停机时，应先要关闭出口流量控制阀，然后再停机，以免因虹吸作用导致泵体内储液量的不足。
- 6、定期进行加油、维护，如长期停止使用应将泵拆卸清洗上油，妥善保存。

1. Before use, should check the direction of rotation of the pump is correct, whether the rotation is flexible.
2. UNSCREW the top of the pump to add liquid plug, fill the reservoir, and then tighten the screw plug. After the start-up does not need to add liquid storage. Should not be insufficient in the case of pump fluid start operation, otherwise the pump can not work properly, and easy to damage the mechanical seal.
3. Boot, should first open the outlet flow control valve, in order to facilitate the process of self-priming gas emissions. After starting, adjust the opening of the outlet flow control valve, so that the pressure gauge reading to the specified area (all types of pump pressure control range table), to avoid working in the lower limit of the specified area, in order to prevent the shaft power is too large and cause motor overload burn or because the flow rate is too large and cause the pump cavitation, affect the normal operation of the pump, so that the pump strong vibration and noise.
4. In the process of operation, should always check the temperature rise of the pump and motor, such as noise and other abnormal sound, should stop checking, troubleshooting before running again.
5. Shut down, should first close the outlet flow control valve, and then shut down, so as not to siphon the role of fluid storage in the pump body.
6. Regular refueling, maintenance, such as long-term stagnant use should be the pump disassembly cleaning oil, properly preserved.

十一、故障与排除 Failures causes and troubleshooting

故障现象 failure	产生原因 Possible causes	排除方法 troubleshooting
泵不出水 Pump's not pumping	1、泵体内储液不足 Lack of fluid storage in pump body 2、吸入管路漏气 Air Leaks from the suction line 3、转速太低 Too Slow RPM 4、泵反转 Pump inversion 5、吸程过高或吸入管路太长 Too High Suction or too long suction line	1、加足 More than enough 2、消除管路漏气现象 Eliminate the phenomenon of gas leakage in pipeline 3、调整电源电压 Adjust the power supply voltage 4、检查纠正 Check and correct 5、降低吸程或缩短管路 Reduce Suction or shorten the pipeline
泵出水不足 Insufficient pumping water	1、因使用不当，吸入管路被堵塞 The suction line is blocked due to improper use 2、功率不足，转速太低 Not Enough power, too low RPM 3、出水阀门开度太小 The outlet valve opening is too small	1、清除堵塞物 Remove the blockage 2、调整额定转速 Adjust the rated speed 3、加大开度 increase the opening
泵噪音、振动过大 Pump noise, excessive vibration	1、底脚不稳 Shaky feet 2、轴承磨损严重 The bearing is badly worn 3、吸程太高 Suction is too high 4、流量太大 There's too much traffic	1、加固 Reinforcement 2、更换轴承 replacement of bearings 3、降低吸程 reduce suction process 4、控制流量 control flow
轴承温升过高 Bearing temperature rise is too high	1、轴承损坏 Bearing damage 2、润滑脂变质或干燥 grease deterioration or drying	1、更换 Replacement 2、更换润滑脂 Replace Grease
泵泄露 Pump leak	1、机械密封件损坏 The mechanical seal is damaged 2、连接螺栓松动 the connecting bolt is loose	1、更换 Replacement 2、紧固 fastening

## 十二 管路损失表 Table for pipe line loss

管径 Pipe diameter (mm)	流 量 Capacity (L/s)																							
	1	2	4	6	8	10	15	20	25	30														
25	32.7	13.0																						
38	3.5	14	55																					
50	0.8	3.1	13	29																				
65		1.6	3.2	7.1	13	20			40	50														
75		0.4	0.8	3.3	5.9	9.6	23.6			60	70													
100			0.23	0.8	1.3	2.1	6.8	8.6	13	19.4		80	90											
125				0.23	0.4	0.63	1.3	2.7	4.1	5.9	10.7			100	110									
150					0.16	0.26	0.58	1.1	1.6	2.3	4.2	6.4	9.4		120	130								
175						0.11	0.27	0.5	0.74	1.05	1.9	2.9	4.3	5.8	7.7	8.6								
200							0.13	0.26	0.37	0.53	0.93	1.5	2.1	2.9	3.7	4.7	6.1	7.2	8.5					
250								0.07	0.12	0.18	0.30	0.48	0.68	0.93	1.2	1.5	1.9	2.3	2.8	3.3	3.7	4.9	5.2	
300									0.07	0.12	0.19	0.27	0.37	0.49	0.61	0.76	0.9	1.1	1.3	1.5	2.0	2.4	2.4	3.0

直管摩擦损失简表(供估计用)100m直管损失系数以新  
铸铁管为标准,旧管加倍。  
Brief table for the frictional loss of a straight pipe(for evaluation), the  
loss meters of a 100m straight pipe takes the newly cast iron pipe as  
the standard and multiply for the old one.

### 一定管路直径之最大流量限制 Limit of the maximum flow for a pipe with a certain diameter

管路直径 Pipeline diameter (mm)	最大流量 Maximum flow (L/s)	最大流速 Maximum flow rate (m/s)	管路直径 Pipeline diameter (mm)	最大流量 Maximum flow (L/s)	最大流速 Maximum flow rate (m/s)
25	1	2.04	125	30.0	2.44
38	2.5	1.69	150	43.0	2.45
50	4.17	2.12	175	60.0	2.49
65	6.67	2.91	200	83.3	2.69
75	10.0	3.26	250	133.0	2.72
100	18.4	2.33	300	192.0	2.71

注: 超过此限值管路损失显著增加。  
Note: The pipeline loss would be made greatly increased once the limit is over.

### 阀及弯管折合直管长度 (每个) The length of a straight pipe converted into from both valve and elbow(each)

种 类 Variety	折合直管直径倍数 Convert into the times of the diameter of a straight pipe	备 注 Remark
全开闸阀 Fully opened gate valve	13	未乘以加倍 Multiple in case of unopen
标准弯管 Standard elbow	25	
截止阀 Back valve	100	
底阀 Foot valve	100	部分球墨加倍 Partial block-up multiplied

注: 例如100mm直管, 底阀折合100倍直径等于100 100=10000mm=10m  
直管长度, 假定流量为8L/s, 直管每100m损失1.3m, 则10m损失0.13m,  
即一个100mm底阀, 流量为8L/s时, 附加损失约0.13m。

Note: For instance, a 100mm diameter pipe, the foot valve has a 100 100=10000mm=10m diameter  
when which is converted into 100 times that of the pipe's diameter. Suppose the flow is 8L/s,  
looked into the above table, the loss of the straight pipe is 1.3m each 100m, then the one for  
100mm is 0.13m, that is, for a 100mm foot valve with a flow 8L/s, its total loss is 0.13m.



神武®  
SHEN WU

## 郑州市神龙泵业有限公司

ZHENGZHOU SHENLONG SUBMERSIBLE PUMP CO.,LTD

地址：中国·河南·郑州市高新技术开发区冬青街 26 号河南电子商务产业园 6 号楼

邮编：450052

电话：0371-55356761、55356762

传真：0371-55356763

网址：<http://www.hnshenwu.com>

生产基地：荥阳广高公路西段